JOURNAL
OF THE
AMERICAN VETERINARY MEDICAL ASSOCIATION

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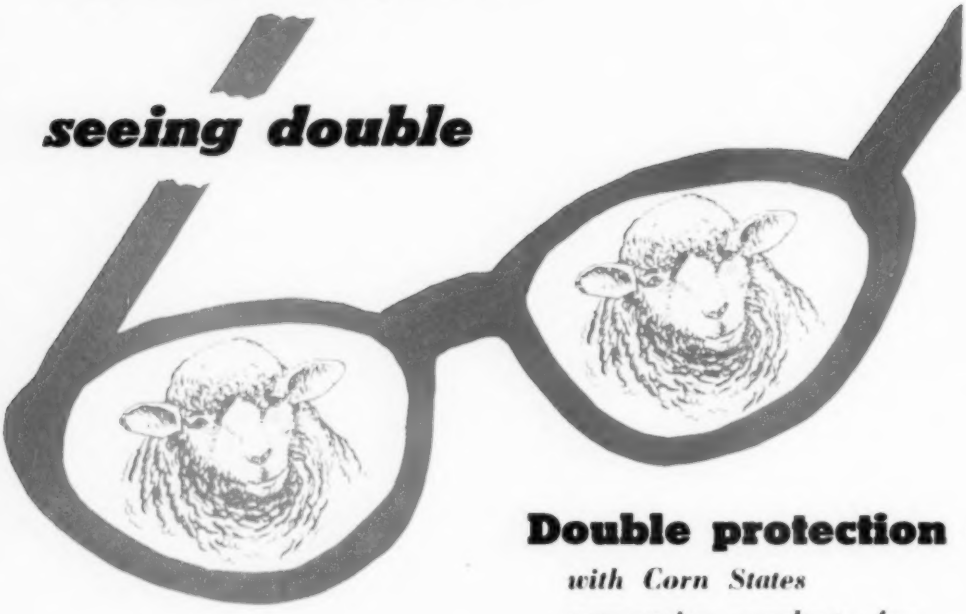

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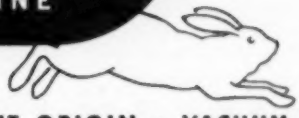

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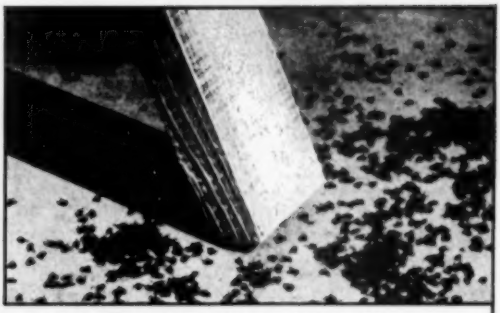

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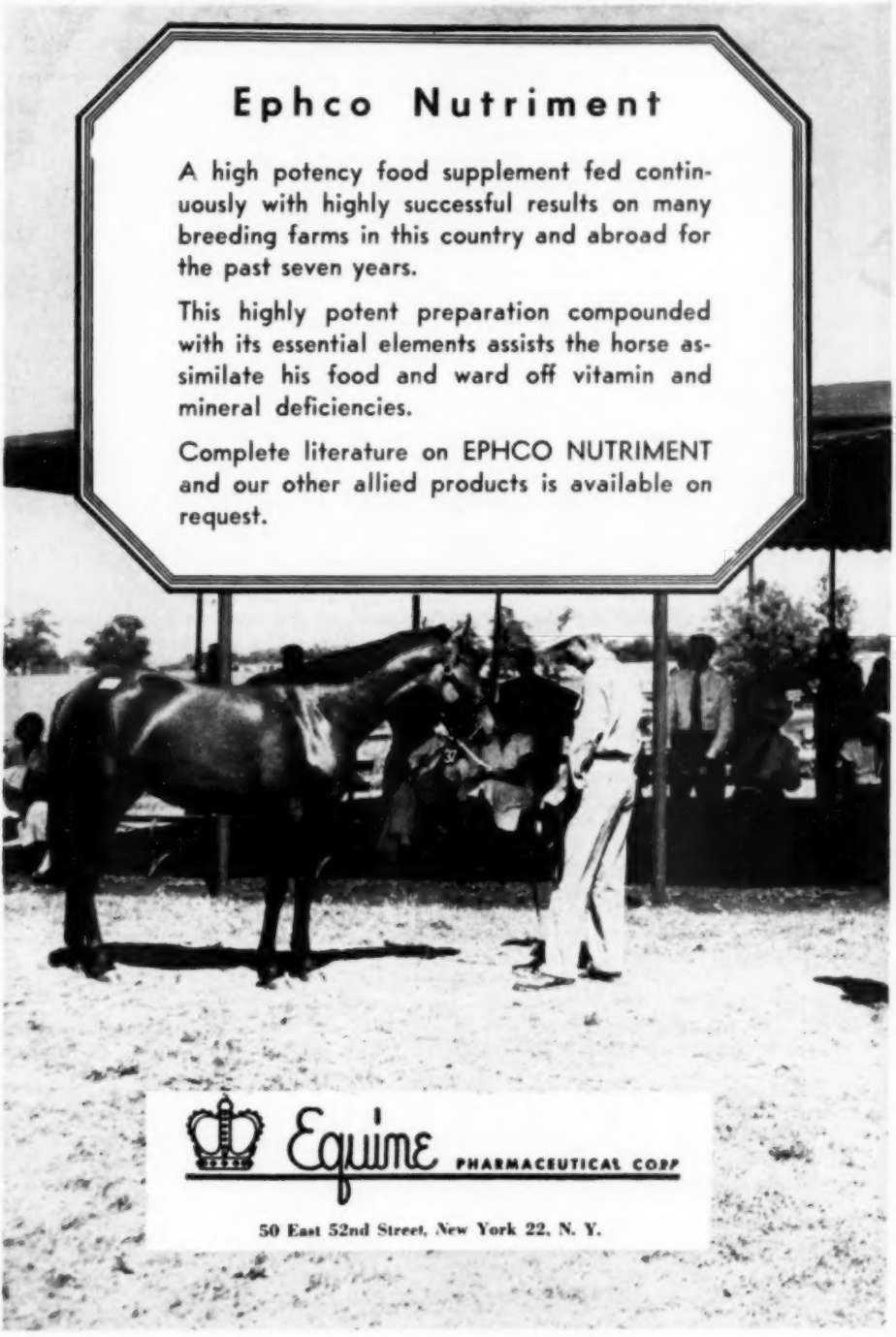
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AVMA ☆ Report

Veterinary Medical Activities

✦ Brig. Gen. J. A. McCallam has begun his travels as the Association's president. He attended the meeting of the Virginia State Veterinary Medical Association at Virginia Beach on September 11 and 12 and the annual conference for veterinarians at Alabama Polytechnic Institute at Auburn, September 17-19.

★ ★ ★

✦ Dr. A. H. Quin, President-Elect of the Association, attended the meeting of the Colorado Veterinary Medical Association in Greeley on September 10 and 11; of the Louisiana State Veterinary Medical Association in Alexandria, September 16 and 17; and of the U.S. Livestock Sanitary Association in Atlantic City, September 23-25.

★ ★ ★

✦ Editor-in-Chief W. A. Aitken spoke to the combined meeting of the Dane County and the Southeastern Veterinary Medical Associations of Wisconsin in Madison on September 3; to the Colorado Veterinary Medical Association in Greeley; and attended the meeting of the U.S. Livestock Sanitary Association in Atlantic City.

★ ★ ★

✦ Dr. Harry E. Kingman, Jr., formerly veterinarian for Wilson & Company and treasurer of the AVMA, has joined the staff of the Association as Assistant Executive Secretary to replace Dr. C. D. Van Houweling who has resigned (*see* p. 352 for details).

★ ★ ★

✦ Dr. J. G. Hardenbergh, executive secretary of the Association, returned on September 3 from his trip to Stockholm, Sweden, and the meeting of the Fifteenth International Veterinary Congress. He will report on the Congress in a forthcoming issue of the JOURNAL.

★ ★ ★

✦ This issue of the JOURNAL contains many highlights of the 1953 Convention which was held in Toronto, Ontario, July 20-23. A complete report of the meeting, including all general and section sessions, committee reports, business sessions, and the preconvention conferences, will be published in the 1953 Proceedings Book.

★ ★ ★

✦ The roster of the officers of the AVMA, of the Auxiliary, the committees of the Association, and other appointees for the ensuing year, appears in this issue (*see* P. 374).

★ ★ ★

✦ The AVMA has been invited to present its new scientific exhibit, "Neoplasms in Domestic Animals," at the eighty-first annual meeting of the American Public Health Association, to be held in New York City, November 9-13.

★ ★ ★

✦ The Association will join with Livestock Conservation, Inc., in presenting a display on tuberculosis and brucellosis at the International Dairy Show to be held in Chicago, October 10-17.

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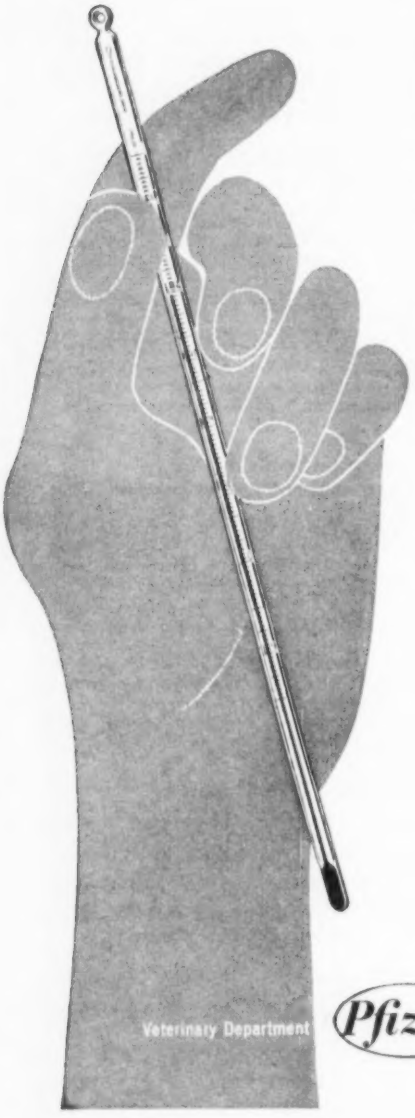

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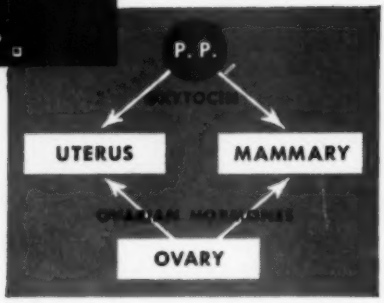
P.O.P.*

purified oxytocic principle

ARMOUR



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P.O.P. (Armour) contains 20 U.S.P. units of oxytocin (twice the amount of the official U.S.P. preparations), and less than 0.4 units of pressor activity per cc.

Due to its high purification, the action of P.O.P. (Armour) on the uterus and mammary gland is obtained without the pressor effects on the blood vessels, typical of unpurified or partially purified posterior pituitary preparations.

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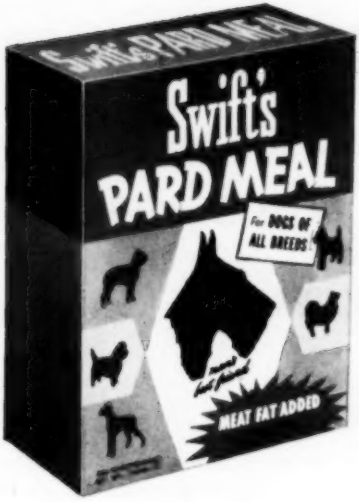

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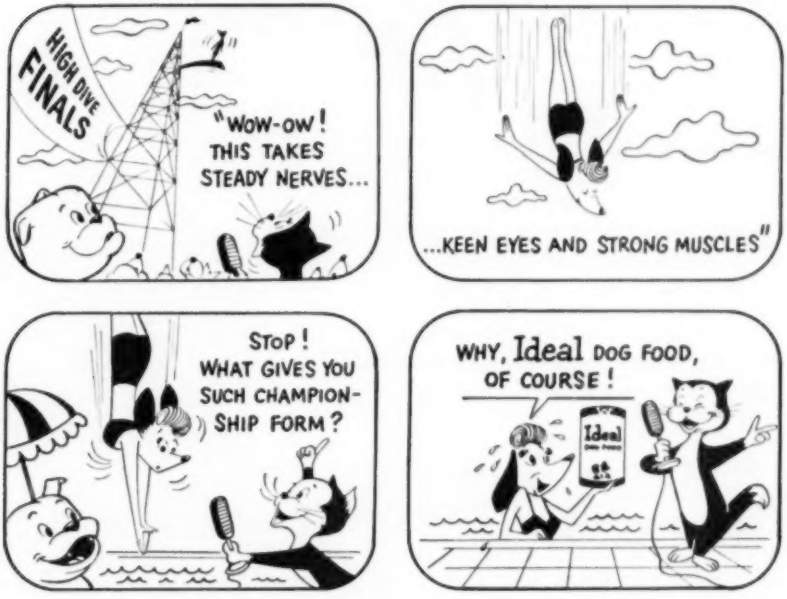
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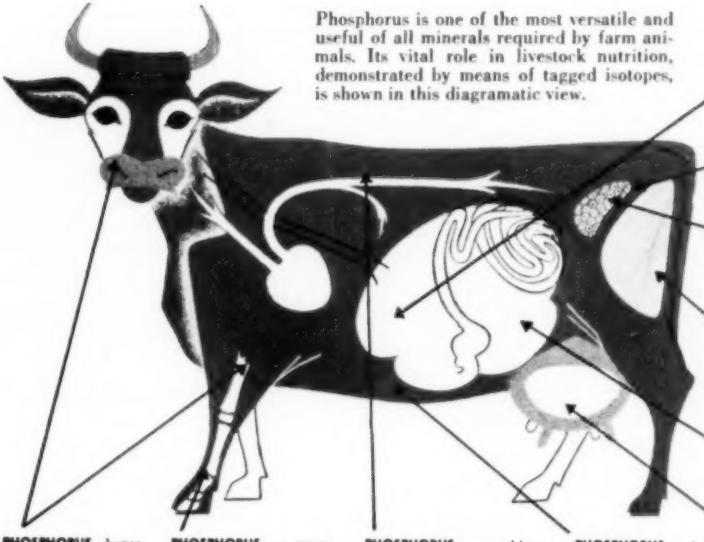
Phosphorus is one of the most versatile and useful of all minerals required by farm animals. Its vital role in livestock nutrition, demonstrated by means of tagged isotopes, is shown in this diagramatic view.



PHOSPHORUS — necessary nutrients for micro-organisms of the rumen.

PHOSPHORUS — combines with certain vitamins to form co-enzymes.

PHOSPHORUS — is present in nucleic acids of all cells — nucleus controls growth and heredity

PHOSPHORUS — needed in muscle tissue, is combined with adenosine and creatine. Liberates energy.

PHOSPHORUS — plays important role in carbohydrate utilization.

PHOSPHORUS — is an important constituent of milk.

PHOSPHORUS—bones and teeth use 70-80% of total phosphorus in the body

PHOSPHORUS — necessary for metabolism of other mineral elements, particularly calcium.

PHOSPHORUS — combines with fats to form phospholipids, aids movement of fats through body.

PHOSPHORUS — important in maintaining acid-alkaline balance in the body.

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with just one vial of

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How? By restoring—often after only a single intravenous injection—hormone balance and normal reproductive function.

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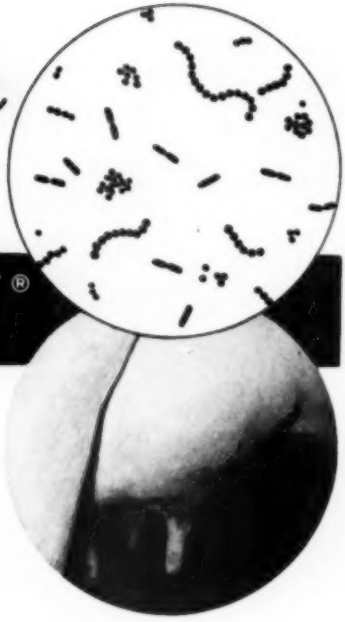

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- **Treatment of mastitis with intramammary Furacin with or without penicillin**
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Important benefits

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2. Less udder damage and loss of productive cows
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6. Economical in cost
7. Control completely under professional direction

Furacin for mastitis is available in two dosage forms:

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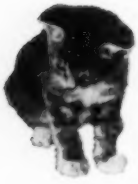

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"of great value" in controlling bleeding

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*Klausman, B. S.: The Use of a New Chemotherapeutic Agent to Arrest Bleeding in Animals, Vet. Med. 46:282, 1951.

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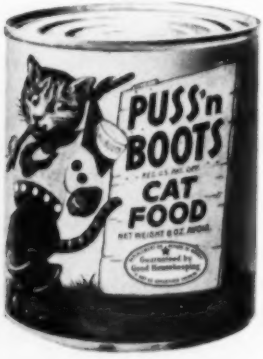
Available in convenient 8 oz. "trial" size and large economy 15 oz. size.



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VOL. 123 OCTOBER, 1953 No. 919

Highlights of the Ninetieth Annual Meeting Toronto, July 20-23, 1953

1953 Registration Set New Record

The official registration at the 1953 AVMA meeting was 3,516 or almost 400 more than the previous record of 3,128 at Milwaukee in 1951. Although the huge crowd severely taxed the facilities of the host city, the meeting was almost unanimously agreed to have been excellently arranged and managed. The scientific program and the educational exhibits were generally agreed to have been the best ever presented, with the closed-circuit television again proving to be increasingly popular. The commercial exhibits were beautiful to see in the freshly decorated booths and truly presented a panorama of 'what's new' in veterinary medicine in North America. The baseball game had a thrilling last inning; the entertainment at the president's dance and reception was climaxed by a long-to-be remembered concert by the beautiful Leslie Bell singers, and all other entertainment features for the ladies, teenagers, and for all registrants were well received and smoothly presented.

Large Registration Presented Problems

The magnitude of the task of staging a convention when the registration totals 3,500 is clearly evident when consideration is given to certain "standard" functions. For example, over 800 women were transported in buses to the Casa Loma castle for the tea and reception. Over 1,000 women attending the annual women's luncheon were transported in street cars to the Canadian National Exhibition grounds, over 2 miles from the Royal York (convention headquarters) hotel. Over 1,600 were served at the 16 college alumni banquets on Wednesday evening. More than 2,500 people were transported to the Palace Pier for the president's dance, a distance of several miles from the hotels. At times, almost

The participants in the Opening Session of the Toronto convention on the platform of concert hall in the Royal York Hotel.

2,000 were in attendance at the meeting of the various scientific sections.

Official Registration Figures

The breakdown of the registration is as follows:

Veterinarians, total, 1,865; members, 1,781; Nonmembers 84
Women (1,139) and Children (208)
Exhibitors 156
Students 63
Guests 85
Total 3,516

Geographical Distribution

The geographical distribution, as shown in table 1, reveals that more registrants (314) were from New York than any other state. Illinois was second with 242, and Ohio and Pennsylvania tied for third place, each with 233 registrants.

As was to be expected, there were many more registrants from Canada than in former years. Of the 864 Canadians, 663 were from Ontario, 76 from Quebec, and the balance from eight other provinces. Of the 663 registrants from Ontario, 378 were veterinarians, which is well over one half of all of the veterinarians in that province.

Every state in the Union except Idaho was represented. The east north-central region of the United States, with 944 registrants had the highest registration, as it has had every other year since 1947, when the convention was held in that zone (Cincinnati).

There were representatives from 13 foreign countries.

TABLE 1—Geographic Distribution of Registrants at the Toronto Meeting, July 20-23, 1953

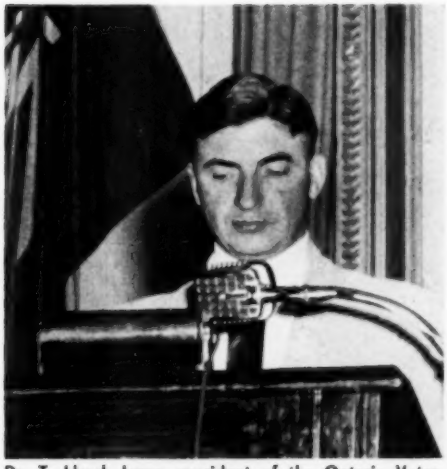
NORTH ATLANTIC STATES	
Maine	24
New Hampshire	13
Vermont	24
Massachusetts	37
Rhode Island	10
Connecticut	41
New York	314
New Jersey	73
Pennsylvania	233
Subtotal	769
EAST NORTH CENTRAL	
Ohio	233
Indiana	167
Illinois	242
Michigan	191
Wisconsin	121
Subtotal	944
WEST NORTH CENTRAL	
Minnesota	77
Iowa	95
Missouri	94
North Dakota	8
South Dakota	13
Nebraska	27
Kansas	74
Subtotal	388
SOUTH ATLANTIC	
Delaware	10
Dist. of Columbia	32
Maryland	48
Virginia	56
West Virginia	6
North Carolina	29
South Carolina	16
Georgia	38
Florida	25
Subtotal	260
SOUTH CENTRAL	
Kentucky	16
Tennessee	24
Alabama	27
Mississippi	4
Arkansas	4
Louisiana	8
Oklahoma	19
Texas	48
Subtotal	150
WESTERN	
Montana	6
Idaho	0
Wyoming	7
Colorado	22
New Mexico	6
Arizona	2
Utah	6
Nevada	2
Washington	14
Oregon	2
California	47
Subtotal	114
Total U. S. A.	2,625
OTHER COUNTRIES	
Canada	864
Argentina	2
Bahamas	2
Canal Zone	1
Cuba	7
Hawaii	1
Israel	2
Mexico	3
N. Ireland	1
Peru	2
Thailand	1
West Africa	1
West Indies	2
Subtotal	27
Miscellaneous	3
Grand Total	3,516

Dr. John A. Charlton, president, Canadian Veterinary Medical Association, and member of Parliament, delivering the address of welcome at the AVMA Convention in Toronto, July 20-23, 1953.

Farm and Home Hour Again Features AVMA Convention

The feature of the National Broadcasting Company Farm and Home Hour program on July 25, 1953, was a discussion, by Brig. Gen. J. A. McCallam, Drs. J. A. Charlton, T. Lloyd Jones, and W. A. Aitken, of the AVMA Ninetieth Annual Meeting and animal disease problems in North America.

General McCallam, AVMA president, reviewed the highlights of the meeting. Dr. Jones, who is president of the Ontario Veterinary Association, principal of the Ontario Veterinary College, and AVMA Executive Board member from Canada, and Dr. Aitken, editor-in-chief of AVMA Journals, discussed the principal animal disease problems of the two countries. Dr. Charlton, a member of the Canadian Parliament and president of the Canadian Veterinary Medical Association, told how his veterinary medical education and



Dr. T. Lloyd Jones, president of the Ontario Veterinary Association, responding to the address of welcome at the Toronto meeting.

Dr. E. R. Bowness, general chairman of the local committee in Toronto, making announcements at the Opening Session of the convention.

training helped him in serving as a member of Parliament.

This is the fifth year the AVMA convention has been featured on the National Farm and Home Hour which celebrated its twenth-fifth anniversary in September, 1953. Recognized as one of the best farm radio programs, it is reputed to have the largest audience of any farm program. A resolution adopted by the AVMA at the 1953 convention congratulated NBC and the sponsor, Allis Chalmers Manufacturing Company, for the service performed to agriculture through this program.

Television Call-Board

An innovation at the 1953 Convention was a television call-board installed and operated by the Radio Corporation of America. Instead of the constant blaring of a public address system for paging registrants, several strategically located viewers notified delegates when they were wanted at convention headquarters by televising the individual's name by closed-circuit transmission. Viewers in the hotel foyer and exhibit hall seemed to appreciate the silent call system and not having to listen to public address paging.

Women's Auxiliary Officers Elected for 1953-1954.—The officers of the Women's Auxiliary to the AVMA elected at the Toronto meeting in July are: Mrs. Russell A. Runnells, East Lansing, Mich., president; Mrs. L. R. Richardson, Ravenna, Ohio, president-elect; Mrs. Earl N. Moore, Wooster, Ohio, first vice-president; Mrs. Alfred E. Coombs, Skowhegan, Maine, second vice-president; Mrs. Lewis H. Moe, Stillwater, Okla., third vice-president; Mrs. C. M. Rodgers, Blandinsville, Ill., secretary; Mrs. Charles C. Rife, Atlanta 3, Ga., treasurer; Mrs. E. A. Woelffer, Oconomowoc, Wis., recorder.

The office of chairman of the Auxiliary house of representatives was eliminated, and the duties transferred to the president-elect.

Mrs. H. S. MacDonald delivering greetings of the Women's Auxiliary to the convention at the Opening Session.

Excerpts from Reports of Officers and Staff Members

Dr. J. G. Hardenbergh, executive secretary, reported a net membership gain of 533 for the eleven months from Aug. 1, 1952, to June 30, 1953, which brings the total membership to 12,476. Membership losses of 285 during the period resulted from deaths (95), resignations (54), and delinquencies (136).

The number of resignations is somewhat higher than recent years, and may be an effect of the dues increase. Others who might have resigned but who were eligible for life membership were so notified if they were qualified.

He also pointed out that, on an average, over a ten-year period only 43 per cent of the Association's income has come from membership fees and dues. This year, due to the sizeable increase in membership dues, the ratio has reversed and during the past year 57 per cent of income has come from this source and 43 per cent from other sources such as advertising, subscriptions, and other miscellaneous sources.

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Assistant Executive Secretary C. D. Van Houweling reported that, as director of professional relations, he tried to function as a catalyst between members, committees, associates on the AVMA staff, and the staffs of other organizations and the personnel of governmental agencies. He stressed the importance of wide member participation in AVMA affairs as a means of developing and maintaining the members' interest. He used as an example the new legislative organization whereby over 500 members are serving as legislative contacts, for the AVMA, with U.S. congressmen.

Dr. Van Houweling also pointed out the outstanding accomplishments in regard to federal government activities, in work with the student chapters, interassociation work, committee work, the film library, and other AVMA activities for which he is responsible.

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Dr. W. A. Aitken, editor-in-chief, reported that the AVMA publications, over the decades, have shown an interesting pattern of growth. Publishing the Proceedings of the AVMA as a separate book was abandoned in 1914, and the American Veterinary Review became the JOURNAL of the AVMA in 1916. From then until 1949 there was little increase in the number of pages published. In 1920, the JOURNAL contained 1,443 pages; in 1939, 1,462 pages; however, in 1938 the format was changed to allow about 60 per cent more information per page. Even when the *American Journal of Veterinary Research* was started in 1940, there was no increase in the total of pages published. In 1949, the total for the two journals was actually 1,366 pages. In 1950, a third publication was created by reviving the "Proceedings Book," which carries a complete record of the annual meeting. We now have a monthly, a quarterly, and an annual publication. The total for the three was 1,887 pages in 1950 and 2,116 pages in 1952. This increase of about 50 per cent in the past five years is continuing in 1953. In the twelve months prior to July, 1953, the articles published in the JOURNAL consisted of bovine subjects, 27 per cent; porcine, 8 per cent; ovine, 4 per cent; equine, 5 per cent; canine, 23 per cent; feline, 3 per cent; avian 7 per cent; and miscellaneous, 23 per cent; thus, 39 per cent was devoted to food-producing animals and 26 per cent to pets.

Retiring President W. L. Boyd receiving the service scroll for a year's work well done from Chairman-of-the-Board Edwin Laitinen.

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Mrs. Helen S. Bayless, assistant editor and advertising manager, stated that the editorial department of the AVMA produces a JOURNAL every month, an *American Journal of Veterinary Research* every quarter, and a "Proceedings Book" every year—in round numbers, about 2,000 pages of printed matter. The personnel has not increased since adding the "Proceedings Book" to the AVMA publications, but with all the issues increasing in size, it is likely that another editorial assistant will be added soon.

The advertising of the JOURNAL has grown from the 348 pages in 1941, with an income of $14,625, to 778 pages in 1953, with an income of $70,016. The circulation has about doubled in those years—as of August 1, 1953, it is 16,550.

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The annual report of Mr. Russell G. Rongren, AVMA director of membership services, reviewed the four major projects for the past year: (1) the membership program, (2) the research fund-raising campaign, (3) the national Scien-

tific Register, and (4) the public information program.

The membership program is aimed at retaining and educating the present members about the benefits of belonging to the AVMA, recovering inactive members, and acquiring new members. On July 10, 96 per cent of the members had renewed their membership for 1953 as compared with 94 per cent in 1952.

The research fund-raising campaign resulted in more than $38,000 being received for research fellowships.

A progress report on the Register of Veterinarians, joint project of the National Science Foundation and the AVMA, showed that approximately 11,000 questionnaires had been completed by U.S. veterinarians and returned to the AVMA. The compilation of the Register is part of the broad program of the National Science Foundation to develop a comprehensive inventory of scientific and technical personnel in the United States.

The public information program has made possible the following: 76 per cent of the counties in the United States receive the monthly *AVMA Press Service* furnished to weekly local papers. More than 300 farm radio directors receive the special bulletin *Farm Radio Briefs* twice a month. And the monthly radio scripts are being furnished to 96 individuals representing provincial, state, and local veterinary associations.

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Dr. Harry E. Kingman, Jr., AVMA treasurer, reported that the Association had had a most successful year from a financial standpoint. Although figures from the official audit were not available, he said the Association's auditor reports an excess of receipts over disbursements of almost $15,000. "This is the second consecutive year that the AVMA has operated in the black and brings the net worth of the Association to the highest level since 1947," according to Dr. Kingman.

AVMA Washington Representative's Report

The AVMA Washington representative, General J. A. McCallam (Ret.), in reporting to the Executive Board on activities of the AVMA Washington office since its opening on March 18, 1953, stated that, in general, these activities in the interest of the profession involved contact and work with the U.S.D.A.; the Headquarters Selective Service System; Civil Service Commission; Department of Labor; Medical Policy Council, Department of Defense; Offices of the Surgeon General of the Army and Air Force, respectively; Department of Health, Education, and Welfare; individual members and committees of the Congress of the United States on legislation and other matters.

He reported briefly on several bills that were introduced in the 83rd Congress in which the AVMA, representing organized veterinary medicine in the United States, has an interest. Several of these bills were on the question of amending the Social Security Act to extend to self-employed persons coverage under the Old Age Survivors Insurance system; some of these bills include veterinarians in addition to other professional persons, while two other bills deal with voluntary pension plans for self-employed persons.

One point stressed by the AVMA Washington representative was the importance of the organization of the AVMA members serving as legislative contacts. He stated that Dr. Van Houweling

A partial view of the commercial exhibits at the Toronto meeting of the AVMA.

had done an excellent job in organizing these "contacts", and it was important to keep the list active, adding to and deleting from it as appropriate.

Ontario Veterinary College Wins Top Educational Exhibit Award

The Ontario Veterinary College, departments of anatomy and small animals, was judged first place winner among the 15 educational exhibits for its display, "Practical Plastic Prosthesis for Femoral Head." Dr. James Archibald and Dr. John Ballantyne were co-sponsors of the exhibit.

The Ontario Veterinary College exhibit was selected from 15 educational exhibits at the convention to win first place with its display, "Practical Plastic Prosthesis for Femoral Head."

Awarded second place was the exhibit, "Rabies Control in Wildlife in Alberta", sponsored by Dr. E. E. Ballantyne, director, Veterinary Services Branch, Alberta Department of Agriculture.

The third place award winner was the exhibit, "Radiology in Veterinary Medicine," presented by Drs. T. J. Hage, G. H. Hart, and H. S. Cameron, of the School of Veterinary Medicine, University of California.

Honorable mention went to the exhibit, "Avian Pathological Specimens," presented by Dr. J. S. Glover, poultry pathologist, Ontario Veterinary College; and to Lt. Col. B. F. Trum, V.C., U.S. Army, for the exhibit, "Veterinary Aspects of Atomic Warfare."

Third Preconvention Conference Highly Successful

The preconvention conference on "Our Total Public Relations Responsibility," held July 19, was well attended. The morning session was devoted to the presentation of formal talks on various phases of our public relations program on the state and local levels. Dr. A. G. Madden of Madeira, Ohio, a member of the AVMA Committee on Public Relations, discussed the need of a comprehensive program on the part of each state organization.

Two of the television kinescopes, developed by the Michigan State Veterinary Medical Association in coöperation with Michigan State College and the AVMA, were shown to the group. Mr. R. G. Rongren of the AVMA staff explained how these kinescopes may be used by state and local organizations. The project is a new venture; its objective is to inform the public of some of the professional aspects of veterinary medicine. In the afternoon meeting of the constituent secretaries, the kinescope program was discussed frankly, and some very valuable suggestions were made that will aid in improving and evaluating this program.

One of the highlights of the morning was a talk on "Policing Our Own Ranks," by Dr. Glen Sawyer, executive secretary, Ontario division of the Canadian Medical Association. The morning program was concluded by a talk on "Interprofessional Organizations" by Dr. F. B. Young, of Waukee, Iowa.

The participating groups, the secretaries, editors, public relations and ethics committeemen, met separately in the afternoon. These discussions helped each group to formulate more specific programs on our total public relations responsibility.

At a luncheon session following the morning meeting, Mr. Milton Bliss, agricultural representative of the National Broadcasting Co., Chicago, spoke on "Public Relations in the Veterinary Profession." Mr. Bliss told of several ways the veterinary profession could strengthen our public relations program and pointed out some of the pitfalls of poorly planned public relations activities. His talk was enthusiastically received by the group. His address will be published in the 1953 "Proceedings Book," as well as the other talks and discussions that occurred during the day.

Incoming President James A. McCallam is installed by Retiring President Willard L. Boyd at the Closing Session of the Ninetieth Annual Meeting of the AVMA in Toronto, July 20-23, 1953.

The AVMA House of Representatives in session during the Ninetieth Annual Meeting of the AVMA in Toronto.

Award Winners at Toronto

BORDEN AWARD

Dr. George H. Hart, dean of the School of Veterinary Medicine at the University of California, received the Borden Award at the Toronto meeting. The recipient of the award, consisting of $1,000 and a medal, is selected by the Committee on Awards of the AVMA.

Dr. George H. Hart, recipient of the Borden Award.

Dr. Hart began his career when he graduated from the University of Pennsylvania in 1903. While in Washington, D. C., working for the BAI, he studied medicine, receiving his M.D. in 1908. Soon after, he began to work in California and has remained in that state, first as a health officer for Los Angeles, later serving as professor in the veterinary science department of the College of Agriculture, University of California, as head of the division of animal husbandry, and as dean of the College until 1948, when he became dean of the new School of Veterinary Medicine and vice president of the University.

His work in research on the diseases of dairy cattle, for which the award was given, consisted of study of tuberculin-testing, carrier and immunity problems in brucellosis, and vitamin deficiency. A partial bibliography shows 15 papers by Dr. Hart alone and 23 by him and co-workers. Dr. Hart has received many other honors and has traveled widely. He is also a member of many scientific and honorary organizations.

TWELFTH INTERNATIONAL VETERINARY CONGRESS PRIZE

Dr. Leunis Van Es, the 1953 winner of this award which is granted for "outstanding service by a member of the AVMA to veterinary science and the profession," was born in Melissant, Holland, Oct. 3, 1868. He graduated from the Government School of Agriculture in Holland. On coming to America in 1889, he entered the Ontario Veterinary College where he received his veterinary degree in 1893. After practicing

Dr. Leunis Van Es, winner of the Twelfth International Veterinary Congress Prize.

at Columbus, Neb., he earned his M.D. degree at the University of Alabama in 1898, where he remained to teach histology and bacteriology for five years.

In 1903, Dr. Van Es became head of the Department of Veterinary Science at the North Dakota Agricultural College where, on June 9, 1952, the Van Es Laboratory was dedicated in his honor.

In 1918, he accepted a similar position at the University of Nebraska where he again brought honor and distinction to his department. He became an emeritus professor in 1946 but still serves in an advisory capacity. He also contributes to the JOURNAL as translator of articles appearing in Dutch journals.

He is the author of "The Principles of Animal Hygiene" and "Preventive Veterinary Medicine," 1932, and of more than 100 bulletins and articles on a wide number of veterinary subjects. Few men have contributed more and had to retract less. It is unlikely that anyone could be more deserving of this award than Dr. Van Es.

As Dr. Van Es was unable to attend the meeting in Toronto, the award was accepted for him by his successor at the University of Nebraska, Dr. Carl Olson.

AVMA AWARD

Dr. George W. Gillie, Fort Wayne, Ind., was the recipient of the AVMA award given for meritorious service to the membership. The award consists of a gold key and a certificate which cited Dr. Gillie for "distinguished service to livestock health."

Dr. George W. Gillie, recipient of the AVMA Award.

Born in Scotland, he came to the United States when 2 years old. He attended Purdue University and received his D.V.M. degree from Ohio State University in 1907. After graduation, Dr. Gillie pioneered in modern meat and milk inspection service for the Fort Wayne area before going into general practice. After serving eight years as sheriff, he was elected to the U.S. House of Representatives in 1939, where he served until 1948. He still serves as a consultant to the United States Department of Agriculture.

Dr. Gillie has always taken an active interest in veterinary medicine at the local, state, and national level. He was an especially effective spokesman for the profession while in Congress and, as a member of the Committee on Agriculture, was a staunch supporter of appropriations and other legislation needed for the effective control of livestock diseases. He has since gone to Washington on numerous occasions as an AVMA representative. During World War II, he was most helpful in matters dealing with the military status of veterinarians and veterinary students.

HUMANE ACT AWARD

For rescuing a trapped dog from a 300-foot canyon at great risk to his own life, 14-year-old Martin Nicholson of North Vancouver, B.C., was voted the AVMA 1953 Humane Act Award at the Ninetieth Annual Meeting in Toronto in July.

The award committee reported that the boy saw the dog on a 1-foot ledge above the boiling rapids at the bottom of a canyon in British Columbia. The dog had been stranded on the ledge for four days, after being swept down-stream by the rushing river while on a fishing trip with its owners.

Making a precarious descent to the ledge, Martin made the first trip with food for the stranded dog, making the almost impossible ascent to the canyon rim just before dark. The next morning a group of men accompanied the boy to the canyon, where he was lowered to the ledge by rope. Martin fashioned a sling for the dog and both were pulled to safety.

Martin Nicholson of North Vancouver, B. C., shown with the dog he rescued from a ledge above a boiling rapids in a canyon near his home. Martin was the winner of the 1953 AVMA Humane Act Award.

Since Martin Nicholson could not be in Toronto to receive his $100 check and certificate, Dr. George W. Mather, chairman of the Committee on Humane Act Award, made the presentation to Dr. Gordon L. Davis, AVMA resident secretary from British Columbia, who, in turn, will convey the prize and certificate to the youth.

Student Chapter Representatives and Auxiliary Delegates Entertained at Buffet Supper

The AVMA was again host to student chapter representatives and Auxiliary delegates, their faculty advisors and wives, guests, and officers of the AVMA and its women's Auxiliary at a buffet supper on Sunday, July 19, in Toronto. There was a representative from each of the 19 schools. Dr. C. D. Van Houweling introduced Dr. W. L.

Boyd, president of the AVMA, who, in turn, introduced AVMA and auxiliary officers to the students.

Mr. Russell F. Staudacher, executive secretary of the Student American Medical Association, was the guest speaker at the supper. He discussed the activities of the student chapters of the A.M.A. The supper was followed by a business meeting of the chapter and auxiliary representatives. There were 45 chapter delegates and faculty advisors in attendance at the meeting.

Some Actions of the Executive Board and House of Representatives

The following future convention cities and dates were approved: 1954—Seattle, Wash., August 23-26; headquarters, the Olympic Hotel.

1955—Minneapolis, Minn., probable dates August 15-18; headquarters, Municipal Auditorium.

1956—San Antonio, Texas, probably a late fall meeting; headquarters, Municipal Auditorium.

1957—Cleveland, Ohio, probably in August and an auditorium meeting.

PUBLIC RELATIONS PROGRAM EXPANDED

The public relations program of recent years was continued and expanded by (1) approving the production of a set of recorded interviews of veterinarians for distribution to radio stations and (2) approving the kinescoping of a series of television programs being produced at Michigan State College. Prints of kinescopes will be offered to state and city veterinary medical associations.

APPOINTMENTS TO THE RESEARCH COUNCIL

The following appointments to the Research Council for a three-year term were approved: L. C. Ferguson—bacteriology; M. J. Swenson—biochemistry and nutrition; E. F. Ebert—large animal medicine; T. L. Jones—pathology; D. K. Detweiler—physiology and pharmacology.

HONORARY MEMBERSHIPS CONFERRED

Dr. Herbert C. Clark, M.D., of the Gorgas Institute in the Panama Canal Zone and Dr. Peter F. Bahnsen of Americus, Ga., were voted honorary membership in the AVMA. Dr. Clark is the director of the Gorgas Institute. His outstanding contributions to veterinary medicine have been on equine trypanosomiasis and the blood parasites of animals causing piroplasmosis, spirochetosis, and malaria. Dr. Clark has worked in Central America for over forty years; he was the subject of an article in the *Saturday Evening Post* (Oct. 4, 1952) entitled "Jungle Doctor."

Dr. Edwin Laitinen, Chairman of the Executive Board

Dr. Bahnsen was the first state veterinarian of Georgia and was secretary of the Georgia Veterinary Medical Association for twenty-five years. He is recognized as a pioneer leader in the eradication of ticks from Georgia and the South. He was recently honored by a resolution in the Georgia House of Representatives, which paid tribute to the "wonderful pioneer work, vision, and effort of this great man."

FIFTY-ONE VOTED FOR LIFE MEMBERSHIP

Fifty-one members who fully qualified for life membership, *i.e.* those who have a record of twenty-five years of continuous membership in good standing and are at least 65 years old, and who request life membership, were granted that status. Their names will be published in the "Proceedings Book" for 1953.

PUBLICATION OF THE 1954 DIRECTORY APPROVED

The publication of a 1954 "AVMA Directory" was approved, and the staff is hoping to have it available early in 1954. It will be sold for $2.50 to members and $15.00 to nonmembers. The 1954 "Direc-

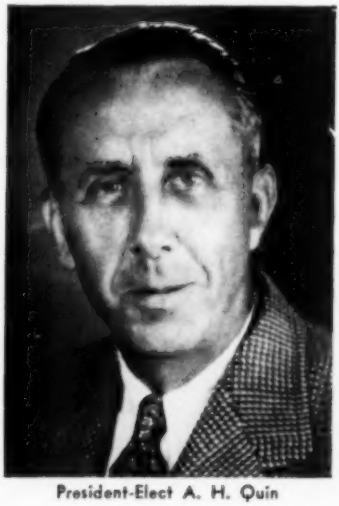
tory" will include a register of veterinary hospitals for the first time.

RECOMMENDATIONS FROM EXECUTIVE COMMITTEE OF HOUSE OF REPRESENTATIVES

The Executive Committee of the House of Representatives made several recommendations which were approved. Among them were (1) that further consideration be given to the establishment of a nominating committee; (2) that the name of the Committee be changed to the Advisory Committee to the House; and (3) that a vote of confidence be given the Council on Education.

The President-Elect and Other Officers Elected at Toronto

Dr. A. H. Quin, Jr., was unanimously elected president-elect of the American Veterinary Medical Association at the Opening Session of the Ninetieth Annual Meeting in Toronto. He succeeds Brig. Gen. James A. McCallam who was installed as president at the Closing Session.



President-Elect A. H. Quin

Born March 7, 1896, in Creston, Iowa, Dr. Quin attended elementary and high schools there, and was valedictorian of the 1920 class of the Chicago Veterinary College. It was only natural for him to be attracted to veterinary medicine, since his father, Dr. A. H. Quin, Sr., and two uncles, Jack and John, all graduated from the Ontario Veterinary College in the 1880's.

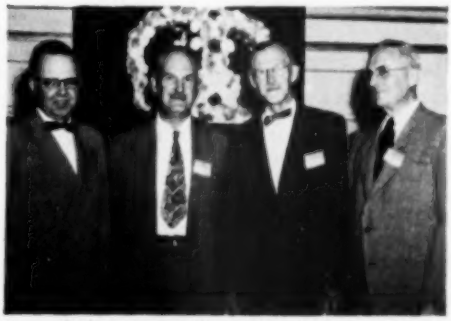
He served on the Mexican border in 1916 with the 168th Iowa Infantry and later with the R.O.T.C. and Officers' Training School in 1917-1918.

After graduation, Dr. Quin practiced in southwest Iowa for three years, worked in California in 1924 on the foot-and-mouth disease outbreak, then spent two years in practice with Dr. J. V. Lacroix in Evanston. He served as a field veterinarian for Fort Dodge Laboratories until 1942 when he became director of professional services and vice-president of Jensen-Salsbery Laboratories, Kansas City, Mo.—a position he still holds.

Dr. Quin joined the AVMA in 1922; he is a life member of the Iowa State Veterinary Medical Association, a member of the Missouri and Kansas City veterinary medical associations, is an honorary member of the Indiana State V.M.A., a member of the United States Livestock Sanitary Association and the American Society of Animal Production. The youngest veterinarian ever to be elected president of the Iowa State Veterinary Medical Association, he served as chairman of that Association's legislative committee during the critical days of the 1930's when the bovine tuberculosis conflagrations occurred in Iowa. A cofounder and charter member of the Central Iowa Veterinary Medical Association, Dr. Quin served it as president and secretary for ten years.

While working for Fort Dodge, he founded and edited the *Fort Dodge Bio-Chemic Review*. Since 1942, he has been editor of the *Jen-Sal Journal*. Dr. Quin has contributed more than 150 articles to professional and agricultural publications and has appeared on the program of 300 veterinary medical meetings.

In 1951, Dr. Quin was honored by being selected for the AVMA award for "meritorious service to the membership and consistent devotion to the advancement of veterinary medicine." At that time, particular emphasis was placed on his contributions to the public relations activities for the profession. For fifteen years, he has been chairman of the Public Education Committee of the Associated Serum Producers and a member and chair-



Four of the vice-presidents elected at the Toronto meeting to serve for 1953-1954 are (left to right): Drs. J. Gordon Anderson, Peter G. MacKintosh, J. F. Shigley, and John McAuliff. Dr. J. B. Engle was elected 5th vice-president but was not present for the picture.

man of the AVMA Public Relations Committee. In addition, he has been responsible for joint meetings of representatives of the AVMA with those of the National Association of County Agricultural Agents, the U.S. Office of Education, and state directors of vocational agriculture in several midwestern states. With each group, a concordat of understanding was developed, which has served as a basis for effective coöperation with these agricultural workers.

He is serving on and has served as a member of committees of the U.S. Livestock Sanitary Association. He is a member of the alumni advisory committee of the University of Missouri, although not an alumnus, and is a member of the advisory committee of the Missouri Veterinary Medical Association. He is also chairman of the public relations committee of the Kansas City Veterinary Medical Association. He recently served as a member of the United States Committee of the Fifteenth International Veterinary Congress.

Earlier this year, Dr. Quin received a national award from Omega Tau Sigma, Gamma Chapter, for outstanding contributions to the advancement of veterinary medicine.

In Kansas City, he is a member of the Chamber of Commerce, Advertising Club, American Legion & 40 & 8, Community Christian Church, and sponsor and member of the Home for Boys.

He married Violet Lebedeff in 1920 and they have two daughters and five grandchildren. His hobbies are golf, bird-hunting, and fishing.

The five vice-presidents of the Association for the coming year who were elected by unanimous vote at the meeting in Toronto are J. Gordon Anderson, 1st vice-president, Calgary, Alta.; Peter G. MacKintosh, 2nd vice-president, Yakima, Wash.; J. F. Shigley, 3rd vice-president, State College, Pa.; John McAuliff, 4th vice-president, Cortland, N.Y.; J. B. Engle, 5th vice-president, Summit, N.J.

Dr. Harry E. Kingman, Jr., of Chicago, was unanimously reëlected treasurer of the Association for the ensuing year.

Ontario Team Wins AVMA Golf Trophy

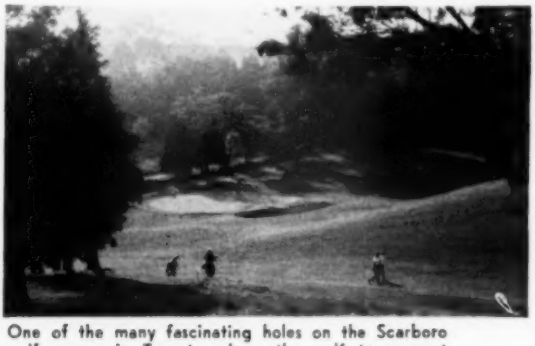
Carrying on the "bigger and better" theme set forth by this year's convention proper, a record-breaking number of entrants (75) turned out for the sixth AVMA Golf Tournament at Toronto's Scarboro Golf Club on July 21. The winners of the state and provincial team championship and recipients of the beautiful AVMA Trophy and individual trophies were Dr. Wm. O'Connor of London, Ont., and Dr. J. Richardson of Toronto, with a gross score of 162 (79 and 83 respectively). Runners-up for the team championship were Dr. L. A. Corwin and Dr. H. G. Scheffler of New York, who finished a very close second, with a gross of 164 and a travel alarm clock each. Medalist winner was Dr. C. H. Payne of New York, who, along with Dr. O'Connor, shot a creditable 79 on a very tricky course.

Second, third and fourth low gross prizes were awarded to Dr. J. M. Delaney, New Jersey, Dr. C. C. Tucker, Iowa, and Dr. A. H. Quin, Missouri,

A group of golfers comparing scores on the Scarboro golf course in Toronto.

respectively. Five low net prizes were won by Drs. D. S. Moore, Ontario, D. G. Dale, Quebec, H. W. Booth, Illinois, L. E. Estler, New Jersey, and W. H. Boyer, Delaware.

Mr. O. W. Nelson, North Dakota, won low gross and Mr. D. C. Burns, Indiana, won low net in the exhibitors' division.



One of the many fascinating holes on the Scarboro golf course in Toronto where the golf tournament was held.

Mr. Wade Lyon, Oklahoma, won low gross and Mr. John P. Hickcox, Missouri, won low net in the students' division.

A special hidden hole prize was won by Dr. W. J. Boddington, Ontario—high score on the 110-yard tenth hole (11 yards per stroke).

The "most honest golfer" was won by Dr.

G. G. Morrow, New York, with a score of 125.

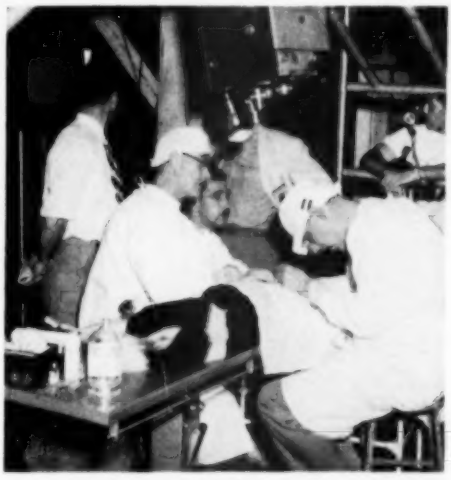
Although the sunny, warm day did not produce too much "hot golf," the 75 amateur "Hogans" enjoyed the fun and competition; they will long remember Scarboro's "forests and streams." It is to be hoped that the Canadian winners will be at Seattle next year to defend their titles.

Closed-Circuit Television Again a Program Highlight

The liberal interspersing of television throughout the three days of the scientific program was conceded to be the most popular program feature and a principal factor in maintaining maximum attendance at section meetings. On three section programs—general practice, small animals, and surgery and obstetrics—there were 27 demonstrations and operations. Ranging from de-scenting a skunk to a bovine cesarean section, they involved over 40 participants. Not only did the demonstrations represent the best in veterinary medical technique, they also were excellent from a television technical viewpoint, because of the clarity of the presentations and the visibility of the procedures.

Although the demonstrations, operations, demonstrators, and surgeons were carefully selected, and even though they had rehearsed prior to appearing on the program, a very large share of the credit for the excellence of the television programs belongs to the men "behind the scenes."

Without the fine work of Dr. C. A. V. Barker, local committeeman in charge of the T.V. arrangements, Dr. L. E. Fisher, Berwyn, Ill., the general master of ceremonies and coördinator of



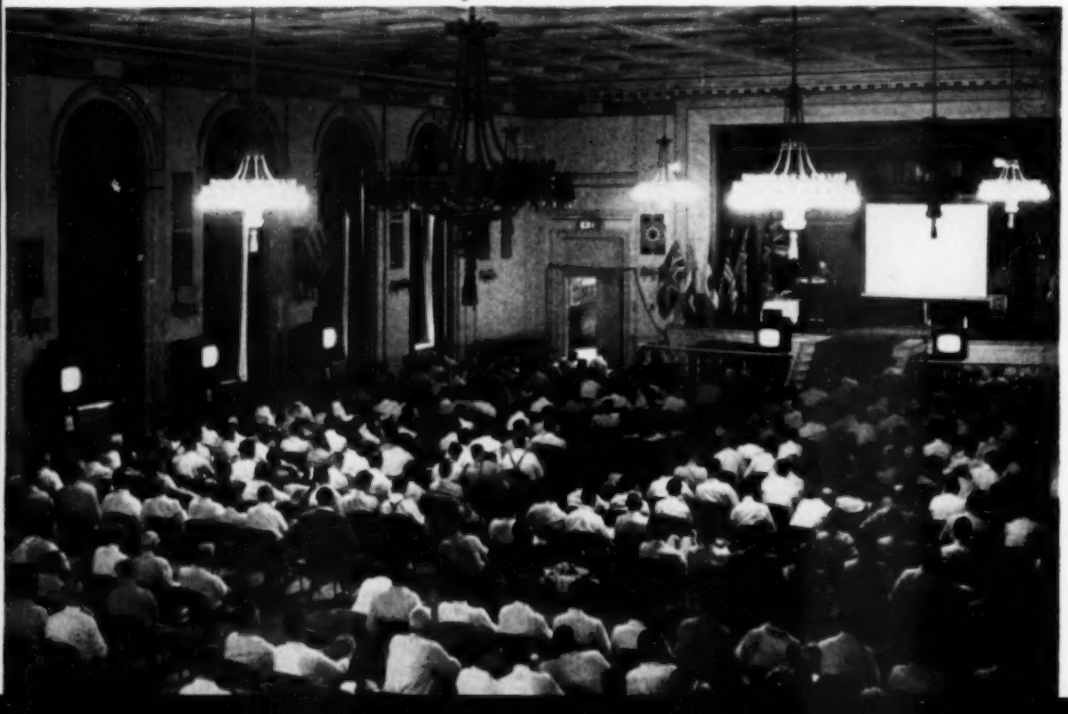
Dr. W. G. Magrane (right) demonstrates extracapsular cataract extraction by suction as part of the small animals section television program. Assisting him is (left) Dr. Frank Booth.

The television studio, AVMA Convention, Toronto. Dr. L. E. Fisher (left), general T. V. announcer and coordinator, introduces a session of televised demonstrations while Mr. John Jewett, of Pitman-Moore Company, appears quite dejected while waiting for the next demonstration to begin. Part of the equipment brought to Toronto for the television presentations is visible in the background.

Repair of hip luxations. Dr. F. J. Kingma (left) the narrator, and Dr. J. O. Knowles, the demonstrator. It was warm in Toronto during the convention but not as warm as Dr. Kingma's perspiration-soaked trousers would indicate. The television floodlights raise the temperature in the studio several degrees.

The use of a magnet to locate and remove foreign bodies was demonstrated by Dr. W. P. Bond as a part of the general practice television program. In the inset is shown a close-up view of the magnet with the foreign bodies attached, which were removed from the cow during the demonstration.

The concert hall in the Royal York Hotel, Toronto, where all of the closed-circuit television programs were shown.



Chairman of the Committee on Program, Dr. C. D. Van Houweling (right), acknowledges the fine work performed by the section officers and all others associated with the scientific program. He is shown during the final session of the surgery and obstetrics television program, with Dr. Ralph L. Kitchell (left), T. V. narrator, waiting to take over.

the whole T.V. program; Mr. Walter Lawrence, the technical director from Radio Corporation of America; Mr. John Jewett, omnipresent "prop" man from Pitman-Moore and Company; and Dr. C. E. Bild, Miami, Fla., who arranged most of the T.V. portion of the general practice session, these portions of the programs would not have been the success they were.

These men devoted practically four days and three evenings of convention week to the television program. The ingenuity they demonstrated in adapting a make-shift studio (in a garage back of the hotel) into an operating room, and operating so successfully under extremely difficult circumstances, was the primary reason for the fine closed-circuit television program in Toronto.

Dr. W. F. Riley, Jr., demonstrating point-firing as part of the surgery and obstetrics television program.

Reports—Group Conferences Held During AVMA Toronto Meeting

American Animal Hospital Association Midseason Meeting

The American Animal Hospital Association held its annual midseason meeting at a luncheon at the Royal York Hotel, Toronto, on Monday, July 20, during the AVMA annual meeting. Approximately sixty members were present. President Corwin, Jamaica, N. Y., presided.

Business affairs of the Associaton were discussed and acted upon. Nine hospitals were voted to membership. Dr. C. P. Zepp, Sr., New York City, chairman of the program committee, reported on plans for the 1954 annual meeting of the A.A.H.A., to be held at Hotel Statler, New York, May 5 to 8.—*Wayne H. Riser, Secretary.*

Meeting of the Women's Veterinary Medical Association

The Women's Veterinary Medical Association, at their meeting in Toronto, voted their annual award of $50 to Dr. Margaret Sloss of Iowa State College as the member who has made the most significant contribution to the profession.

The officers for the coming year are: president, Dr. Lois Calhoun, East Lansing, Mich., reëlected; vice-presidents: Drs. Lorraine B. Nielsen, Guelph, Ont. (eastern), Norma Greiner Kopp, Grand Rapids, Mich. (central), Phyllis Hickney Larsen, San Diego, Calif. (western), and Hildegard Seelig, Asheville, N. Car. (southern); Patricia O'Connor, Staten Island, N. Y., secretary.—*Patricia O'Connor, Secretary.*

Meeting of Zoo Veterinarians

Thirty-three persons attended the eighth annual meeting of the zoo veterinarians on Tuesday evening, July 21, at the Royal York Hotel. The members of this group meet each year during the national AVMA convention to present papers, case reports, and discuss various veterinary problems encountered in zoos.

We wish to express our sincere appreciation to Drs. J. A. Campbell and N. D. Scollard and to the Toronto Department of Parks for their hospitality in providing the fine dinner party. Mr.

Oscar Pearson, Commissioner of Parks, attended and welcomed the group.

The following reports were presented: Lt. Johnie Reeves, Evaluation of the Tuberculin Test in Monkeys; Dr. David Coffin and Lt. Morton Wolf, Gastric Ulcer and Endocarditis in an African Elephant; Dr. Donald Schmidt, Convulsions in Bengal Tigers; Dr. Glen Crosbie, movies of the San Diego Zoo showing restraint and treatment of some zoo specimens.

Dr. J. R. Wadsworth, Department of Animal Pathology, University of Vermont, Burlington, would like to receive mammalian, reptilian, and avian tumors. He will be happy to submit diagnosis if requested.—*Patricia O'Connor, Secretary.*

Conference of Veterinary Parasitologists

Fifteen veterinary parasitologists were present for the informal conference held on Tuesday, July 21, 1953, at the Royal York Hotel. Major items discussed were: possibility of a formal organization of veterinary parasitologists (a committee will make recommendations regarding this at the next meeting); coöperation between this group and the committee on parasitology of the International Veterinary Congress; preparation of a list of American workers in animal parasitology; coöperation with Armed Forces Institute of Pathology in accumulating material on the pathology of parasitic diseases.

A similar conference will be held at the 1954 meeting of the AVMA in Seattle.—*W. S. Bailey, Chairman, AVMA Committee on Parasitology.*

Meeting of the American Board of Veterinary Public Health

The fourth annual meeting of the American Board of Veterinary Public Health was held at the Royal York Hotel, Toronto, July 21. New members who had successfully completed the requirements and examination for certification were welcomed by the president, Dr. Frank A. Todd.

Dr. H. J. Stafseth reported that Dr. E. John Larson of Michigan State College was the first recipient of the Bryan award given by the American Board of Veterinary Public Health. The board voted that an annual examination for certification would be given each year during the convention of the American Public Health Association. The next convention will be in New York City, Nov. 9-13, 1953. Information on veterinary public health instruction, acquired from a survey of the curriculums of the veterinary colleges as well as from questionnaires from approximately fifty newly commissioned veterinary officers, was discussed.

The board will sponsor a contest for the school year 1953-1954 and will offer a $100 U. S. government bond to the senior veterinary student who prepares the best theme of not more than 1,500 words on the subject of "Veterinary Public Health." The council of the Board will determine the winner.

The constitution and by-laws were amended to permit the combining of the offices of secretary and treasurer.

Newly elected officers for the period 1953-1954 are: president Dr. H. J. Stafseth, Michigan State College; vice-president, Dr. I. A. Merchant, Iowa State College; secretary-treasurer, Dr. M. D. Baum, Colorado State Health Department; councilors, Dr. J. Scatterday, Florida State Health Department, and Lt. Col. J. H. Hempy, U. S. A. F. —*F. A. Todd, Acting Secretary.*

Conference of Extension Veterinarians

The extension veterinarians met on Tuesday afternoon, July 21, at 4:00 p.m. in the Royal York Hotel with eight veterinarians present, representing eight states or provinces.

Dr. William R. Mitchell of Ontario Veterinary College, Guelph, acted as chairman.

Each veterinarian introduced himself and gave a brief resumé of the extension work being done in his area. The discussion period that followed was both interesting and instructive.—*F. A. Hall, Chairman.*

Meeting of the American College of Veterinary Pathologists

The meeting was called to order at 5 p.m. on July 20 by Dr. E. A. Benbrook, president. The agenda discussed included: report of the examining committee; the designation of emeritus members as a result of retirement; discussion of a new leaflet covering functions of the association; and discussion of the seminar to be held this November.

The report of the committee on examinations was given by Dr. H. R. Siebold including a list of the new members certified by the college as the result of the examination given in Chicago last November. They are as follows: Drs. W. A. Anderson, BAI Pathological Laboratory, Denver, Colo., C. N. Barron and C. A. Gleiser, Armed Forces Institute of Pathology, Washington, D. C., Kenneth McEntee, New York State Veterinary College, J. T. McGrath, University of Pennsylvania, and Joseph Simon, the University of Wisconsin.

The members approved the listing of Dr. Lee M. Roderick, Kansas State College, as an emeritus member, due to retirement. There was a discussion on the new information leaflet which will cover the purposes and aims of the college as well as more precise information on the significance of certification by this group. One of the main objectives is the furthering of scientific progress in veterinary pathology, especially establishing the standards of training and experience which would merit recognition as a qualified specialist in that field. For entrance to the examination, a minimum of five years of postgraduate study, training, and experience is required;

two of these years must have been spent under formal supervision, such as graduate training.

The committee on teaching methods was changed to the committee on education of which Dr. R. A. Runnells is chairman. The seminar, open only to members, will be held in Chicago, Nov. 28, 1953, and will consider the diseases of the female reproductive system. Dr. Peter Olafson will act as moderator and the request for slides and procedures to follow in assembling the material is being sent to each member of the organization.

The business meeting will be held at the time of the seminar in Chicago.—*W. T. S. Thorp, Secretary-Treasurer.*

Conference on Care of Laboratory Animals

Some forty to fifty veterinarians attended this conference held Sunday afternoon, July 19. Discussion of the topics provided much additional information to that presented by the speakers. The program was as follows: Physical Examination of Experimental Rhesus Monkeys, Dr. W. H. Dieterich, First Army Area Medical Laboratory, New York, N. Y.; Nutrition of Dogs, Dr. R. H. Udall, Colorado A. & M. College, Fort Collins, Colo.; Conditioning and Procurement of Experimental Animals, Dr. R. D. Larcey, Western Reserve University, Cleveland, Ohio; What is the Suitable Laboratory Animal?, Dr. R. W. Fogelman, Hazleton Laboratories, Falls Church, Va.

Also discussed were the procurement of animals, an explanation of the Animal Resources Institute established by the National Research Council, and other topics having a direct relation to the care of laboratory animals. The material presented will be submitted for publication. Those present were of the opinion that a similar conference should be held at the time of the 1954 AVMA meeting in Seattle.—*W. T. S. Thorp, Secretary.*

Meeting of the National Society of Phi Zeta

The national society of Phi Zeta held its annual meeting on July 19 in the Royal York Hotel, with 24 members in attendance.

The business consisted chiefly of discussions of the sources of income of the national society, and of the objectives outlined by the Gamma Chapter at Iowa State College, with suggestions that the same, or similar, objectives be instituted by each chapter.

These objectives are (1) to promote scholarship and research by instituting, at the beginning of each school year, a means whereby the students would be informed of the existence of the honor society and its objectives by *(a)* cooperating with the local chapter of the AVMA in sponsoring the fall student-faculty meeting; *(b)* asking the dean to speak on Phi Zeta and its objectives as a part of the program; *(c)* having the local chapter sponsor a student-faculty seminar with an invited speaker who is a member of some chapter of Phi Zeta; (2) to encourage the seniors of unusual ability to use their ability, during their last year, for accomplishments not demanded of the average student.

The following officers were elected for the national society: president, Dr. L. C. Ferguson, Ohio State University; president-elect, Dr. A. D. Rankin, Colorado A. & M. College; secretary-treasurer, Dr. J. J. Stockton, Michigan State College—*E. A. Hewitt, Chairman.*

Conference of Veterinary Radiologists

The third annual meeting of veterinary radiologists was held in Toronto on July 20, with twenty-five present and Chairman Tennille presiding. Dr. W. C. Banks, secretary, reported on the origin and present-day functioning of the American College of Radiology (medical radiologists) and the qualifications necessary to belong to that organization. Today's requirements are quite exacting but at the time the college was formed it was primarily a society of physicians interested in human radiology.

The group decided to organize a veterinary radiology society for veterinarians interested in radiology. A committee was selected to prepare and submit a constitution and proceed with the formation of this society. The committee is composed of Drs. W. C. Glenney (Pa.), M. A. Emmerson (Iowa), W. C. Banks secretary (Texas), R. B. McClelland (N.Y.), and N. B. Tennille, chairman (Okla.).

Also suggested was the appointment of two associate editors of radiology to advise the JOURNAL of the AVMA and to review submitted articles dealing with radiology. The possibility of a two-day radiology workshop to be held in the fall of the year was discussed. A committee will investigate this proposed meeting and report at an early date.

The following committees were recommended: (1) for standardization of definitions, terminology, and symbols in: *(a)* radiology and fluoroscopy; *(b)* x-ray therapy; *(c)* radium and radioactive materials; (2) to outline the basic and advance physics necessary for veterinary students and practicing veterinary radiologists including a bibliography; (3) to review techniques to show what methods have been useful to veterinary radiologists; (4) to prepare a forceful and careful

Found

A pair of tinted (sun) spectacles made to prescription, and in a brown leather case, were found on the convention floor, Royal York Hotel, July 22, during the AVMA convention in Toronto. These were brought to the executive secretary's office (parlor A) *after* owner had made inquiries about them. The spectacles can be had by contacting the AVMA Central Office, 600 S. Michigan Ave., Chicago 5, Ill.

publication on the hazards of radiation and methods for protection of the veterinary radiologist, students, assistants, and patients; (5) to study available radiology record systems and make recommendations for improvements.

Drs. N. B. Tennille, Stillwater, Okla., and W. C. Banks, College Station, Texas, were reëlected chairman and secretary for the coming year. A short time was devoted to viewing and discussing some radiographs. It seems desirable that in the future there be longer periods for reading and discussing radiographs and other information.

A group of veterinarians teaching radiology in schools met for breakfast on Tuesday morning and discussed some of the problems associated with instruction to students in this field. —*N. B. Tennille, Chairman.*

Meeting of Deans of Colleges of Veterinary Medicine

The annual meeting of the Association of Deans of the American Colleges of Veterinary Medicine was held in Toronto on July 19, 1953, with President Leasure presiding.

Present were Deans Allam, Clark, Graham, Groth, Hagan, Hart, Krill, Leasure, Merchant, Orr, Stone, Sugg, Williams, Acting Assistant Dean Kernkamp, Principal Jones, and Drs. Kleckner and Trepanier representing Deans Jones and Labelle, respectively.

Absent were Deans Boughton and Cross.

The following subjects were discussed: Audio-visual-video aids for teaching of veterinary medicine; clinical facilities—financing, record keeping, working hours for staff, private practice by staff, etc; the philosophy and attitudes of the different schools on the admission of women students (Texas A. & M. and Iowa State do not admit women, all schools discourage them); the policy of conferring the B.S. degree in addition to the D.V.M. (about half of the schools confer the degree and others are considering doing so).

Acquainting students with the opportunities for careers in public work; broadening of clinical programs; policies on travel by staff members at institutional expense; academic robes; graduate degrees conferred at different schools; handling applicants who are graduates of foreign colleges of veterinary medicine; policies of readmission of students dropped for poor scholarship; the honor system; and the present draft situation.

Drs. Milliff and Jensen were reëlected to succeed themselves as representatives to the National Veterinary Medical Examining Board.

Copies of informative material on the residence of freshmen entering colleges of veterinary medicine were distributed.

Mrs. D. M. Campbell stated that she wished to present each school with a set of "Veterinary Military History" in memory of the late Dr. D. M. Campbell.—*A. H. Groth, Secretary.*

Meeting of the American Veterinary Exhibitors Association

The annual dinner and business meeting of the American Veterinary Exhibitors Association was held at the Royal York Hotel in Toronto, Sunday, July 19.

Dr. John G. Hardenbergh gave a brief resumé of the forthcoming AVMA convention.

At the business meeting, the following members of the executive committee for 1953 were elected: Dr. J. R. Harris, the S. E. Massengill Company, Bristol, Tenn., president; Mr. C. M. McCallister, Jensen-Salsbery Laboratories, Kansas City, Mo., vice-president; Dr. Carl Norden, Jr., Norden Laboratories, Lincoln, Neb., secretary-treasurer; Dr. R. H. Hollis, Abbott Laboratories, North Chicago, Ill., and Mr. Walter E. Schwartz, Wilson and Company, Chicago, Ill. Advisory trustees are Dr. J. L. Davidson, the Upjohn Company, Kalamazoo, Mich., and Mr. Frank E. Bickall, Fort Dodge Laboratories, Fort Dodge, Iowa.

The exhibitors association awarded prizes again this year and the winner of the man's two-suiter travelling case was Dr. E. A. Murphy, Arlington, Va., and of the lady's fitted case, Dr. E. E. Brittin, Pekin, Ill. The members voted to donate $250 to the research fund of the AVMA. This brings the total contributed by the exhibitors association to $750.—*J. R. Harris, Secretary-Treasurer.*

Alumni Dinner Meetings

Alabama Polytechnic Institute

About thirty-five alumni and guests attended the dinner meeting at the Royal York Hotel on July 22. Dr. M. K. Heath served as chairman for the meeting. After the dinner and introduction of each person present, Dean R. S. Sugg gave a brief report on the recent activities and current status of the veterinary school. Dr. B. T. Simms spoke briefly about the "Auburn Spirit" after which the group gave a few resounding "War Eagles."—*W. S. Bailey, Chairman.*

Kansas State College

The Kansas State College veterinary alumni dinner was held in the Royal York Hotel, Wednesday evening, July 22, with 136 alumni and their wives present. After brief opening remarks and introduction of guests, a roll was called of alumni.

Professor Emeritus J. H. Burt of the Department of Anatomy was called upon for a few remarks. Dean E. E. Leasure then gave a short summary of outstanding events occurring on the campus and within the school during the past year. The veterinary building program was also discussed. Dr. M. J. Twiehaus of the Department of Pathology showed a series of colored 2 by 2 slides of the campus including the first veterinary hospital, the present veterinary hos-

pital, and the hospital now under construction on the campus.

The meeting adjourned at 8:30 so those present might attend the president's reception and dance. —*E. E. Leasure, Chairman.*

Iowa State College

About seventy persons attended the Iowa State College Alumni dinner in the Royal York Hotel the evening of July 22. Dean I. A. Merchant presided. Other deans present were A. H. Groth, University of Missouri, and H. W. Orr, Oklahoma A. & M. College. All alumni were asked to identify themselves and their families or guests. Professor emeritus and Mrs. C. H. Covault were special guests. Dean Merchant told the group of the activities and aims of the faculty at Iowa State and Dr. Mack Emmerson volunteered some appreciative remarks on the activities of the new dean.—*W. A. Aitken.*

Michigan State College

The M.S.C. Veterinary Alumni Association enjoyed a chicken dinner at the Royal York Hotel on Wednesday, July 22, 1953, with characteristic good fellowship. Seventy-one were present; about two-thirds were alumni, the remainder were their wives.

The major issue to come to the attention of the group was the proper disposition of the balance in the treasury. This money had been subscribed by members to provide memorials to former Deans Giltner and Bryan. Since the appropriate plaques had been provided and installed, it was decided that the balance in the treasury should be called the Bryan-Giltner Alumni Loan Fund. This fund is to be administered as a student loan fund under the direction of three M.S.C. alumni to be appointed by Dean C. F. Clark.

The group elected the same officers for the ensuing year.—*C. F. Clark.*

Dr. and Mrs. Charles W. Bower, Topeka, Kan., at the Toronto meeting of the AVMA. The Bowers have attended the AVMA conventions for the last thirty-two consecutive years.

New York State

Two hundred alumni and guests attended the alumni dinner of the New York State Veterinary College during the annual convention in Toronto. Following an excellent dinner, Dean W. A. Hagan gave a brief report of the recent happenings at the veterinary college and on the Cornell campus. It is expected that construction on the new veterinary college will begin this fall.

Dr. Donald W. Baker showed a movie of the veterinary college faculty in their various activities taken nearly twenty years ago. This movie was of great interest to the visiting alumni.

The meeting was closed with the singing of the Evening Song.—*S. J. Roberts, Secretary.*

Texas A. & M. College

The Texas A. & M. College alumni met in the Royal York Hotel on July 22 at 6:30 p.m. After a delicious dinner, those in attendance were introduced. Dr. Raymond Hander, as master of ceremonies, was "put on the spot" by an earlier decision that the last man to appear for the dinner and program would be seated at the center of the head table and would act as m.c. With no previous indications as to his duties for the evening, the "1953 Outstanding Practitioner of Texas" did a remarkable job of officiating.

The informality and surprises of the evening contributed greatly to the success of the program. By unanimous ballot, the group decided to select the one with the least cultivated voice to lead the singing. Disturbance to other alumni meetings, held in adjacent rooms, was apparent when Dr. Leon W. Gibbs, with his self-styled and obviously untrained voice, struck up the tune to the Aggie War Hymn. Vibrations throughout the Royal York became so immense that the tune was rapidly changed to the soft and heart-warming chords of the Spirit of Aggieland. Following the singing, the group decided a mistake had been made and that Dr. Gibbs was a capable leader.

The executive secretary of the Texas V.M.A., Dr. Alvin Price, was called upon unexpectedly to report on the veterinary organizations within the state. Declining the invitation to speak because of lack of preparation, Dr. Price had pointed out to him that he was the only paid employee present and was, therefore, advised to speak. Dr. Price never got to the "meat" of his subject due to the disturbing influence of boos and hisses.

Attending the hilarious meeting were fifty veterinarians and family members from across the

country. From the greatest distance came Dr. and Mrs. John W. Patton (1921) from Indochina.

Following the banquet, the group moved to Palace Pier, located on Lake Ontario, site of the AVMA president's reception and ball.—*W. C. Banks, Secretary.*

Washington State College

A dinner meeting of the Washington State College Alumni Association was held at the Royal York Hotel on the evening of July 22.

Dean emeritus E. E. Wegner told of his interesting experiences as race track veterinarian for the Longacres Race Track at Seattle.

Dean Stone gave an account of the activities of the College of Veterinary Medicine during the past year and discussed plans for the alumni association meeting at Seattle in 1954. The annual meeting at Seattle will include many class reunions. Deans emeritus E. E. Wegner and J. E. McCoy will be featured speakers at the 1954 meeting.—*E. C. Stone, Chairman.*

R.O.T.C. Cadets Train in Texas

A record number (154) of veterinary cadets spent six weeks "deep in the heart of Texas" this summer at the 1953 Army Medical Service R.O.T.C. summer camp, which was held at the Medical Field Service School, Brooke Army Medical Center, Fort Sam Houston, Texas.

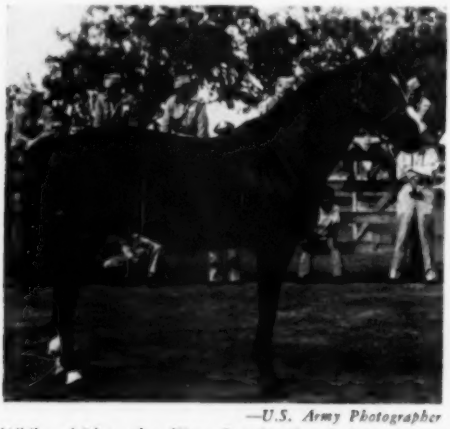
The six veterinary colleges sending students were also represented by a Veterinary Corps officer from the R.O.T.C. unit, who served as an instructor at the camp, supplementing the staff of the Medical Field Service School, which

—U.S. Army Photographer

Dr. William A. Hagan, dean of the New York State Veterinary College, Cornell University, checks to see how good a job the R.O.T.C. cadets did in securing the pack to the mule.

was responsible for the cadets' training. The officers were Col. Charles E. Robinson, U.S.A.F. (V.C.), Ohio State University; Lt. Colonel Martin A. Ross, V.C., University of Pennsylvania; Lt. Colonel Edwin J. Sunderville, V.C., Cornell University; Major Bernard H. Skold, V.C., Colorado A. & M. College; Major Gordon W. Vacura, V.C., Kansas State College, and Captain Samuel Thompson, V.C., Iowa State College.

The course, the purpose of which is to familiarize the cadets with the duties and responsibilities they will assume as Veterinary



—U.S. Army Photographer

While visiting the King Ranch, the cadets get a chance to see Middleground, winner of the Derby and Preakness in 1950, and now a sire at the ranch.

—U.S. Army Photograph

Two veterinary R.O.T.C. cadets watch as a turkey is cleaned with an air blower at Stahl Brothers Poultry Processing Plant, Gonzales, Texas.

—*U.S. Army Photographer*

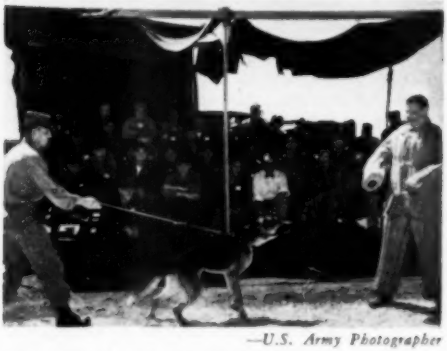
The veterinary R.O.T.C. cadets look at some Santa Gertrudis steers which have been summer-fed as an experiment at the King Ranch.

Corps officers in the Army and Air Force, included all phases of military veterinary medicine: veterinary laboratory service, public health, veterinary service in support of military operations, preventive medicine, and food inspection.

Classes on horsemanship and physical examination of animals were held at the station veterinary hospital, and a pack team from the 35th Quartermaster Company, and war dogs from the Army Dog Training Center, were shipped from Camp Carson, Colo., for the cadets' training.

To supplement their local training, the cadets visited the Texas Agricultural Experiment Station at Gonzales to observe the experiments in the control of poultry diseases; and the U.S.D.A. Parasitology and Plant Quarantine Experimental Station at Kerrville, Texas, where they saw a biopsy performed on a steer for the removal of a portion of the omentum, used in determining the amount of absorption of insecticides.

Other places visited included Stahl Brothers Poultry Processing Plant at Gonzales, Texas; the Luling Foundation at Luling, Texas, where better methods of livestock improvement and soil conservation are demonstrated for the benefit of farmers and livestock producers; and the King Ranch, Kingsville, Texas, the world's largest cattle ranch, where the cadets had an opportunity to observe the Santa Gertrudis breed of cattle developed there, and the many fine Thoroughbred and Quarter horses raised there.



—*U.S. Army Photographer*

At a war dog demonstration held at the R.O.T.C. summer camp. The dogs and trainers were brought from the Army Dog Training Center at Camp Carson, Colo.

Among the many visitors to the camp were Brig. Gen. Jacob L. Hartman, V.C., chief of the Veterinary Corps; Dr. William A. Hagan, dean of the New York State Veterinary College, Cornell University; Dr. C. D. Van Houweling, of the AVMA; and Dr. Richard D. Turk, from Texas A. & M. College.

Serving as camp commander was Major Gen. Martin E. Griffin, M.C., Commanding General of Brooke Army Medical Center. The deputy commander was Col. William E. Jennings, V.C., director of the Department of Veterinary Service at Medical Field Service School.

At the graduation exercises on July 31, two of the cadets were sworn into the U.S. Air Force Reserve as Veterinary Corps officers.

Vesicular Exanthema

New regulations promulgated by the Secretary of Agriculture effective July 1, 1953, in an effort to bring vesicular exanthema under control, seems to be working well in general. In one state at least some difficulty is being encountered at public markets where buyers are discriminating against garbage-fed swine, even though the regulations have been complied with, in offering from $5.00 to $7.00 per hundred weight or less than for grain-fed swine.

It is believed that the U.S. Department of Agriculture did not intend that swine which were fed cooked garbage and certified as free of V.E. at the time of inspection should have their identity maintained after entering a public stockyard at final shipping destination. The application of such segregation in public stockyards resulting in price discrimination defeats the purpose of garbage cooking requirements. Amendment of the revised regulation in this respect may be considered desirable.

Superphosphate to Keep Litter Dry.—Plain superphosphate fertilizer was superior to hydrate lime, finely ground limestone, or gypsum in controlling odors and dampness of the litter in poultry houses. During each brooding season, about 25 lb. of the fertilizer was used to each 100 square feet of floor.—*Farm J., July, 1953.*

SURGERY & OBSTETRICS
AND PROBLEMS OF BREEDING

Congenital Pulmonic Valvular Stenosis in a Dog

Report of a Case Successfully Treated Surgically

JEROME H. RIPPS, D.V.M., and ALFRED R. HENDERSON, M.D.

Asbury Park, New Jersey

WITH THE RECENT development of operative procedures designed to correct the effects of congenital cardiovascular lesions in man, it follows, quite naturally, that such operations should be employed for the surgical management of similar defects in animals. Scant material has appeared in the veterinary literature concerning congenital heart disease in dogs; particularly rare are reports of pulmonic stenosis. It is our contention, however, that these anomalies are more common than suspected by the practicing veterinarian and remain undiagnosed until discovered at autopsy, should one be performed. This feeling is in accord with Detweiler[1] who reported 4 cases of pulmonic stenosis in dogs, 1 having been suspected antemortem. Only 1 other case has been diagnosed clinically, to our knowledge, and this case (a boxer puppy) was successfully treated surgically by Dr. Charles P. Bailey[2] of Philadelphia.

Although much remains to be learned about congenital pulmonic stenosis, considerable knowledge has accumulated since the original description by the celebrated Danish anatomist Niels Stensen[3] almost 300 years ago. Later, Morgagni[4] described a case of pulmonic stenosis and was the first to rightly ascribe the cyanosis to venous obstruction. These writings, as well as those of Sandifort[5] in 1777 and Peacock[6] in 1858, preceded those of Fallot[7] in 1888, but the meticulous work of Fallot has deserved that the entity of pulmonic stenosis associated with several other intracardiac anomalies be catalogued in his name. It remained for Rokitansky[8] to initiate attempts to correlate these defects with the existing embryological information of the day and for Keith[9] and Spitzer[10] to furnish explanations for their malformation. More recently, the excellent monographs by Abbott,[11] Taussig,[12] Gross,[13] Brown,[14] and Schnitker,[15] have gathered together a considerable quantity of clinical and postmortem material resulting in a more rational understanding of congenital cardiac anomalies.

Initially, these anomalies remained little more than curiosities since nothing corrective could be done about them. However, since the Blalock-Taussig operation,[16] first performed in 1944, great effort has been put forward in studying these lesions, since for the first time the possibilities of surgical correction could now be offered. This operation, designed for the surgical treatment of pulmonic stenosis whether pure or with associated defects, was designed to by-pass the obstructed pulmonary artery by shunting blood into a peripheral pulmonary arterial trunk via a subclavian artery which was brought down and anastomosed to it, thereby allowing blood to flow directly from the aorta into the pulmonary circulation.

At the present time, the Blalock-Taussig operation has, for the most part, been abandoned in favor of the Brock procedure whereby, in place of creating another defect by such an anastomosis, the obstruction in the pulmonary outflow tract is dealt with directly through the right ventricular chamber.[17,18]

Two major types of obstruction to pulmonary arterial circulation can exist. In one, there is a fusion of the pulmonic valvular cusps so as to produce a cone-shaped diaphragm, in the center of which lies a small orifice which allows a limited volume of blood to flow to the lungs. This is called valvular stenosis. The second type is characterized by the existence of normal pulmonic valvular cusps with obstruction in the region immediately beneath the valve within the infundibulum or right ventricular out-flow tract. This is called infundibular stenosis.

Obstruction to the flow of blood to the lungs, whether it be because of valvular or infundibular stenosis, presents the same clinical picture. The degree of cyanosis, amount of disability, and longevity will depend mostly upon the degree of obstruction to right ventricular out-flow and the

Dr. Ripps is small animal practitioner, consultant, experimental cardiovascular laboratory, Monmouth Memorial Hospital, Long Branch, N. J. Dr. Henderson is thoracic surgeon, Monmouth Memorial, Fitkin, and Riverview Hospitals.

The authors express their gratitude to Mrs. John W. Alden, operating room supervisor of Monmouth Memorial Hospital, Long Branch, N. J., for her kindness in setting up and assisting them with this operation; also to the authorities of the Hospital for permitting this procedure to be carried out in the experimental cardiovascular laboratory.

volume of blood shunted to the left side of the heart via the patent foramen ovale. Associated defects (e.g., the size of the interventricular defect, if present) will modify the clinical picture also. It is well known that some human beings with these defects will die shortly after birth; others will live a relatively normal and long life, depending upon the degree of stenosis and the existence of other intracardiac defects.

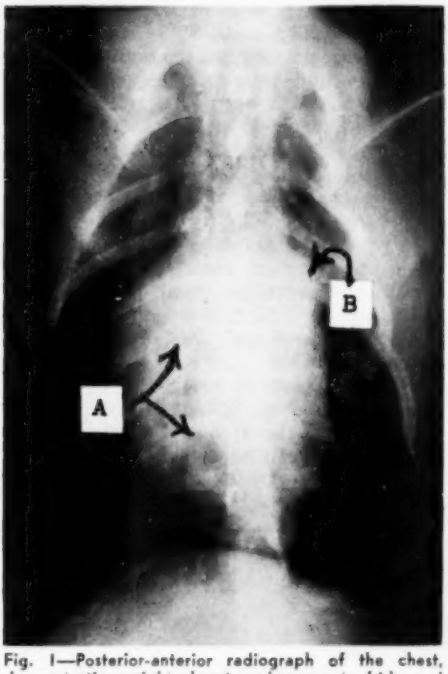


Fig. 1—Posterior-anterior radiograph of the chest, demonstrating right heart enlargement (A) and dilatation of the pulmonary artery (B).

If, in the presence of cyanosis and abnormal heart sounds the diagnosis of pulmonic stenosis (with or without the tetrology of Fallot) is suspected, the diagnosis is confirmed by angiocardiography and/or cardiac catheterization.

CASE PRESENTATION

The patient was a 21-month-old Boxer with a history of periodic cyanosis, extreme ease of fatigability, and under-development since birth. Several episodes of syncope had been reported. The physical examination revealed a thin, listless animal with dusky mucous membranes and about 20 lb. underweight for his age. His red blood count was 12,500,000 with 19 Gm. of hemoglobin, revealing a true polycythema. A harsh systolic murmur was audible midsternally and throughout the right chest. A questionable thrill was palpable just to the right of the sternum. A posterior-anterior chest roentgenogram (fig. 1) revealed right heart enlargement.

Angiocardiography, performed by Dr. Vincent Whalen, radiologist at the Monmouth Memorial Hospital, Long Branch, N. J., revealed impairment to flow, indicated by greatly dilated pulmonary arteries on the three-second film (fig. 2). There was no evidence of a right-to-left shunt within the heart and on this basis pure pulmonic stenosis was diagnosed in favor of Fallot's tetrology.

In taking the angiocardiograms, 20 cc. of 70 per cent diodrast was injected rapidly into the internal jugular vein, with the anesthetized dog on his back overlying the Fairchild angiocardiographic table. Roentgenograms were taken at one-second intervals as soon as the diodrast dye was injected, thus, following the dye through the superior vena cava, right heart, pulmonary circulation, left heart, and aorta. Defects and shunts could be pictured in this manner by a photographic record of the flow of

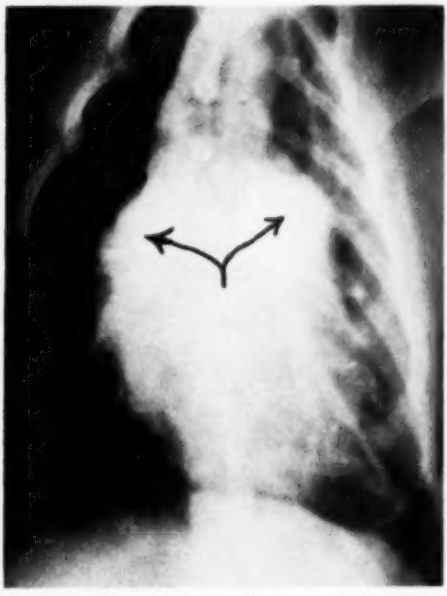


Fig. 2—Angiocardiogram. Three-second film showing greatly enlarged pulmonary arteries (arrows) immediately distal to the pulmonic valve. There is prolongation of the emptying time of the right heart as revealed by dye retention after three seconds.

the column of dye through the intrathoracic cardiovascular structures.

On Feb. 1, 1953, the animal was returned to the hospital for surgery, a Brock procedure having been decided upon. Under intravenous pentobarbital sodium anesthesia, the dog was placed on his right side and an endotracheal tube, used in human thoracic surgery, was placed within his trachea and attached to a Burns' valve apparatus to maintain respirations during the open thorax operation. A long left posterolateral thoracotomy incision was made behind the left scapula. The fascia and muscular layers were divided in line with this incision, all bleeding vessels being caught in hemostats and ligated with No. 000 cotton sutures. The left thorax was entered through the fourth intercostal space and the ribs spread apart with a small size tuffier retractor. The left lung was collapsed and packed away from the operative field with warm wet sponges. The pericardium was then opened horizontally about 3 cm. below the origin of the pulmonary artery and vertically parallel to and anterior to the phrenic nerve. The heart was thus exposed in the region of the out-flow tract of the right ventricle (which, actually, lies to the left of the midline). A fine thrill could be palpated over the base of the pulmonary artery; none could be felt over the right ventricle itself. This usually indicates valvular stenosis since, when infundibular stenosis exists, the thrill is felt over the right ventricular myocardium.

Two sutures of ánacap No. 2 silk were placed within the right ventricular wall anteriorly, about 2 cm. below the origin of the pulmonary artery. These (fig. 3) were traction sutures, not tied, and were crossed over the incision made between them so as to control bleeding from the right ventricle. A stab wound between these sutures was then made and a 3-mm. Hegar dilator was passed into the right ventricle through this small incision upward through the infundibulum and the pulmonary valve without meeting resistance from obstruction. The dilator could be felt within the pulmonary artery beyond the valve area. This indicated that although there was valvular obstruction, the orifice was at least 3 mm. in diameter. A larger, 5-mm., dilator would not pass through the valve, indicating true valvular stenosis.

A small size Brock knife was then passed through the same incision in the ventricle and through the stenosis, creating a bicuspid valve of the conical structure existing there. Finally, a large Brock knife (fig. 3), then several large Hegar dilators to further dilate the region, were passed

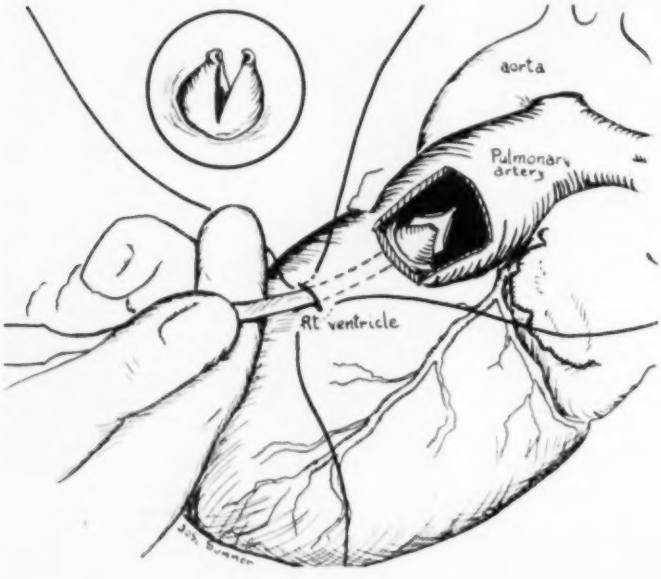


Fig. 3—Traction sutures, not tied, were crossed over the incision made between them to control bleeding from the right ventricle.

into the pulmonary artery via the original incision in the right ventricle. The thrill previously felt over the pulmonary artery was hardly perceptible following the opening of the stenosed valve. The stab wound was closed with three interrupted 000 cotton sutures. The pericardial sac was then lavaged copiously with saline solution and the pericardium closed with several fine cotton sutures, being left open superiorly, however, to allow for drainage into the pleural space should postoperative effusion or bleeding occur, thus preventing tamponing of the heart.

The moist sponges were then removed, allowing the lung to expand, aided by the positive pressure from the mechanical respirator. The rib cage was closed with a series of No. 1 chromic catgut interrupted sutures placed through the third and fifth intercostal spaces, which when tied approximated the fourth and fifth ribs. The muscular layers, fascia, and skin were approximated with interrupted 000 cotton sutures. The trapped air within the pleural cavity was then aspirated with a small French catheter, which was removed prior to the dog's awakening. No dressing was applied. The postoperative course was completely uncomplicated, the animal eating and walking about on the first postoperative day.

DISCUSSION

Almost without exception, the physical abnormalities which plague man, whether congenital or acquired, exist in other animals. This case represents an important liaison between human and animal medicine; each has something to offer the other. If an animal survives the initial trauma of birth, there is no reason why the most modern methods of surgery should be denied it, should a repairable congenital cardiac anomaly exist. The diagnostic methods of the thoracic surgeon, as well as his operative know-how, should be made available to the animal, as well as the human, patient. This is occurring on an ever-increasing scale in orthopedic and abdominal surgery and, as more cardiac anomalies are recognized, more animals will benefit from techniques now available to human patients.

The mortality for cyanotic cardiac anomalies is high early in life. According to Ash and Harshaw,[10] only about 6 per cent of human cases will live beyond 9 years of age. The case presented here survived, we believe, because sufficient aperture existed within the stenosed valve (3 to 5 mm.) to permit a fair flow of blood into the lungs and because there were no associated abnormalities.

The poststenotic dilatation of the pul-

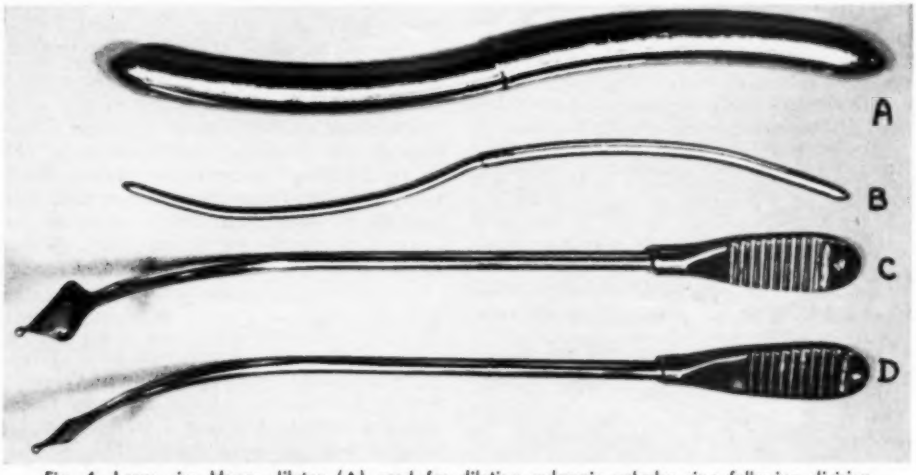


Fig. 4—Large size Hegar dilator (A) used for dilating pulmonic valvular ring following division of the cone with the Brock knife; small Hegar dilator (B) used as a probe or guide through the right ventricular wall as a means of locating the stenosed valve and determining the route to the stenosis prior to insertion of the cutting instruments; Bailey-Glover-O'Neill modificaton (C) of the Brock knife, large size; same knife (D), small size.

monary arteries, as viewed on the angiocardiogram, is explained on the basis of turbulance of flow beyond the stenotic orifice. This phenomenon is also seen in cases of coarctation of the aorta where there is a dilated region of the aorta immediately distal to the constricted portion. The jet of swirling fluid (blood) apparently contains sufficient force to bring about this distention and thinning of the vessels.

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Genetics, Environment, and Leukosis

Apparently, the most important factors in determining mortality from avian leukosis are inherited susceptibility, the age when exposed, and the severity of the exposure. In one 1951 experiment, when chickens were raised together, the losses in resistant strains was 2.7 per cent compared to 61.0 per cent for susceptible strains.

In another trial, birds raised in isolation were highly resistant to exposure after ages varying from 6 to 16 weeks. The severity of exposure was tested by raising related birds at various distances from infected adults. The number affected was four times as great in the group raised 40 feet from the adult stock as in the group raised 100 feet away. In the development of resistant strains, animal disease research has lagged notoriously behind research on plant diseases.—*Science, June 19, 1953.*

Loss of Teats in Newborn Pigs.—The *Veterinary Record* (July 11, 1953) reports that in a purebred herd, within two days of birth, the anterior one or two pairs of the pig's teats became hard and white around the base, then either fell off or were rubbed off. The pigs showed no signs of ill health. Since it occurred in pigs farrowed both on concrete and wood floors, and since not all of the pigs were related, the cause has not been determined.

Duration of Fertility in Turkeys.—Following the artificial insemination of 48 Jersey Buff turkey hens, the average duration of fertility was forty-seven and one-half days. More than 90 per cent of the eggs were fertile for thirty days.—*Mass. Agric. Exper. Sta. Bull. 467, March, 1953.*

A Litter of Calves

The *Veterinary Record* (July 4, 1953) reports that a 5-year-old Holstein-Friesian cow at her second calving produced unassisted 7 calves of which 5 were fully developed but all were dead. The British Ministry of Agriculture and Fisheries believes this is a record for natural production. Quintuplets have been produced artificially but they too have been born dead.

The Use of Secobarbital Sodium and Mephenesin as an Anesthetic for Dogs

A Preliminary Report

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BARBITURATES, particularly pentobarbital sodium solutions given intravenously, have become standard general anesthetics for small animals. This is probably due to their quick action and relative safety, when used with caution. However, pentobarbital sodium solutions have the disadvantage of producing a longer duration of anesthesia than is necessary for the majority of surgical operations performed on small animals and the anesthetic dose closely approximates the lethal amount.

Recently, pentobarbital sodium has been combined with a muscle relaxant drug, mephenesin. This combination produces smooth induction to anesthesia and quieter awakening, eliminating the violent reactions of some animals. The report by Kingma[1] on the combined use of these two drugs prompted this investigation of other barbiturate combinations with mephenesin.

Secobarbital sodium, due to its rapid action and short duration, was chosen as a logical combination* with mephenesin. Secobarbital sodium is classified by Goodman and Gilman[6] as a short acting barbiturate, on the basis of onset of action and duration of effect, whereas pentobarbital sodium falls in the moderate acting group. This places secobarbital sodium between pentothal, an ultra short acting barbiturate, and pentobarbital in duration of activity. Secobarbital sodium has been used in human medicine as a central nervous system depressant for any degree of depression desired, from light sedation to hypnosis, by varying the dose. As is the case with pentobarbital sodium, large doses depress respiration; both drugs pass the placental barrier and are broken down in the body, probably in the liver.

Mephenesin[3] is a synthetic muscle relaxant that produces transient relaxation and paralysis of skeletal muscles. It has a tendency to depress reflex excitability. Mephenesin does not act on the higher brain centers because it does not affect consciousness when given in therapeutic amounts. The effect of mephenesin[5] action resembles curare but is not as lasting and does not paralyze the muscles of respiration. Mephenesin[4] is quickly conjugated in the body but the mode of action or the organ system involved is not entirely known. In dogs, after a large single intravenous injection, only a small amount (2 %) of mephesin is excreted in the urine. It is probably broken down in the liver by conjugation with glycuronic and by oxidation. It has a potentiating effect on barbiturates. Mephenesin has been used successfully in combination with pentothal, nitrous oxide, and cyclopropane in human subjects to obtain greater abdominal relaxation. Mallinson[5] reported no evidence of toxic effects on any organs of the body when doses well in excess of those therapeutically effective were administered to rabbits. Rabbits,[3] injected intravenously with 10 to 12 mg. per kilogram of body weight showed muscular relaxation. Doses of 30 to 50 mg./kg. produced flaccid paralysis, while doses of 350 mg./kg. were well tolerated when injected over a period of thirty minutes. Muscle relaxation, during anesthesia, can l e obtained by the use of curare; however, this method is not without danger since the amount of curare necessary to produce muscular relaxation is very close to the amount that produces intercostal paralysis.

MATERIALS AND METHODS

A sterile solution containing 50 mg. (¾ gr.) secobarbital sodium and 30 mg. (5/12 gr.) mephenesin in each cubic centimeter was prepared. Fifteen normal healthy dogs, ranging in age from 7 months to 8 years and having an average weight of 23 lb., 8 oz., were used in the tests. Prior to making the intravenous injection, each dog was carefully weighed and the dose calculated as 1 cc. of the

From the S. E. Massengill Company, Bristol, Tenn.

*Myothesia, a sterile solution combining secobarbital sodium and mephenesin, is supplied by the S. E. Massengill Company, Bristol, Tenn.

combination for each 5 lb. of body weight. The injection was given slowly (1 cc. per minute), using a 22-gauge needle and given to effect to produce the desired plane of surgical anesthesia, which was determined by the pedal reflex and insensitivity to pain.

DISCUSSION

The average dose required to produce the desired plane of surgical anesthesia was 1 cc. of the combination for each 6 2/3 lb. of body weight. In no case was the calculated dose of 1 cc./5 lb. required (*see* table 1). The average sleeping time, which was determined by the elapsed time from the injection until the animal had gained consciousness and some equilibrium, was one hour and fifty-five minutes. Surgical anesthesia was considered to continue for approximately fifty-seven minutes which was about one-half of the sleeping time. It was noted that this combination produced smoother induction to anesthesia and quieter awakening, eliminating the violent reaction of some animals to barbiturate anesthesia. A dosage of 30 mg. of mephenesin per 5 lb. of body weight seemed to be the optimum dose for muscular relaxation and for a potentiating effect on secobarbital sodium. As with pentobarbital sodium, reliance can not be placed on fixed doses. The age, weight, and general condition of the animal must be considered and considerable experience is required to judge, by physical signs, the amount to inject while the animal is entering surgical anesthesia.

TABLE 1—Results of Secobarbital Sodium and Mephenesin Anesthesia

Dog	Weight	Age	Dose*	Sleeping time**
1	30 lb., 3 oz.	8 mo.	4.9 cc.	2 hr.
2	32 lb., 8 oz.	8 mo.	4.7 cc.	1 hr., 15 min.
3	31 lb., 5 oz.	7 yr.	5.1 cc.	2 hr., 30 min.
4	17 lb., 7 oz.	5 yr.	2.7 cc.	1 hr., 30 min.
5	23 lb., 6 oz.	8 yr.	4.0 cc.	2 hr., 15 min.
6	16 lb., 13 oz.	5 yr.	2.0 cc.	2 hr.
7	24 lb.	8 yr.	4.0 cc.	1 hr., 30 min.
8	28 lb.	5 yr.	3.5 cc.	2 hr.
9	17 lb.	5 yr.	2.4 cc.	1 hr., 35 min.
10	28 lb., 13 oz.	7 yr.	4.5 cc.	2 hr., 30 min.
11	15 lb., 14 oz.	5 yr.	2.2 cc.	1 hr., 40 min.
12	25 lb.	8 yr.	4.0 cc.	2 hr.
13	29 lb.	7 yr.	4.6 cc.	2 hr., 15 min.
14	21 lb.	5 yr.	3.0 cc.	2 hr.
15	12 lb., 8 oz.	7 mo.	1.6 cc.	1 hr., 45 min.
	352 lb., 13oz. total weight		53.2 cc.	28 hr., 45 min.

Ave. weight—23.4 lb.; Ave. dose—3.54 cc.; Ave. sleeping time, 1 hr., 55 min.
Ave. dose, 1 cc. per 6 2/3 lb. of body weight.

*Given to effect to produce the desired plane of surgical anesthesia. **Sleeping time was determined by the elapsed time from the injection until the animal had regained consciousness and some equilibrium.

SUMMARY

A combination of secobarbital sodium and mephenesin was administered intravenously to 15 healthy dogs and the dosage and sleeping time recorded. Based on these observations, the amount of secobarbital sodium necessary to produce surgical anesthesia is reduced with the simultaneous administration of mephenesin. Also, when using this combination the onset of action is quicker, more intense, and of briefer duration than that observed with pentobarbital sodium. It was also noted that a smoother induction and awakening from anesthesia resulted from using this combination.

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Hormone Influence on Milk Secretion

According to the University of Missouri, at least three hormones play an essential part in the secretion of milk. The first stimulates the growth and development of the mammary gland; the second, thyroxine, apparently stimulates the appetite and the heart rate, with increased circulation to the udder; the third, pituitrin, is called the milk "let-down" hormone which apparently stimulates the myoepithelial cells in the alveoli, causing them to empty into the ducts. Benefits from the injection of these hormones usually can be expected only if the cow's supply of these hormones is inadequate.—*Brown Swiss Bull., May, 1953.*

Excretion of Sex Hormones During Pregnancy in the Buffalo

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Extensive investigations have been carried out to diagnose pregnancy in cattle, using different biological tests.[5] Urine from cows contains no chorionic gonadotrophins throughout pregnancy.[4] However, estrogens are found in the urine of pregnant cows,[2] the rate of excretion rising gradually from the one-hundredth day of gestation to parturition.[3] Pregnancy diagnosis by hormonic detection is only achieved after the fourth month of pregnancy by using biological methods.

In the present work, it was hoped to diagnose pregnancy in the buffalo by detection of sex hormones (gonadotrophic and estrogenic) in the urine as follows: (1) the gonadotrophic hormones to be detected by using their spermatogenic reaction in the Egyptian male toad, *Bufo regularis*,[7] a technique which is reliable for diagnosing early pregnancy in women; (2) estrogenic hormones to be detected by using the vaginal cornification technique in the mature ovariectomized mouse.[1] For these two types of tests, 15 pregnant Egyptian buffaloes were available at the Animal Breeding Research Farm, Cairo, Egypt; their actual dates of conception were recorded.

About 100 cc. of morning urine was collected from each animal monthly. It was found essential to detoxify the urine, using the ether-sugar technique adopted by Zondek[10] and to extract it by ether, using the method of Shapiro *et al.*[9] The cloacal discharge of each toad under test was examined microscopically without staining; it should be free from sperm. Three cubic centimeters of each urine sample was injected into the dorsal lymph sac of each of 5 male toads, after which three microscopical examinations were made of cloacal discharges at intervals of one-half to one hour. The presence of spermatozoa in these discharges indicated the presence of gonadotrophic hormones in the urine.

For detection of estrogenic hormones, mature ovariectemized mice (in groups of 10) were first primed; 3 Gm. of synthetic estrogen was dissolved in 24 cc. of arachis oil by gentle heating. Each mouse was injected subcutaneously three times at four-hour intervals in the lumbar region with 0.8 cc. of the solution for a total dose of 2.4 cc. of the solution containing 0.3 Gm. of the synthetic hormone. The reacting animals (as determined by cornification of vaginal cells) were isolated for fifteen days before injection of urine extracts. The nonreacting mice were discarded. Monthly samples of urine (about 100 cc.) were hydrolyzed by hydrochloric acid and extracted by ether according to the technique adopted by Cuboni.[6] An extract of each urine sample was injected subcutaneously in the lumbar region of 10 ovariectemized mice, each mouse receiving three doses of 1 cc. at four-hour intervals.

That chorionic gonadotrophins were not present during pregnancy was indicated by the absence of spermatogenic reactions in the toad. During early pregnancy (up to 3½ months), estrogenic hormones were not detected, but the cornification reaction proved their presence during late pregnancy (after 3½ months).

Conclusion.—Gonadotrophic hormones are not detectable (using the male toad test) in the urine of a pregnant buffalo. However, it is possible that these hormones are present in very small amounts. The estrogenic reaction is only feasible from three and one half to nine and one half months of pregnancy. Further work is needed to find a rapid, reliable method for early pregnancy diagnosis in the buffalo. Work concerning the presence of sex hormones in the body fluids of the buffalo is still in progress, using biological methods. A recent chemical method is now being used to determine urinary estrogens in the pregnant buffalo.[8]

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Thanks are due to Dr. E. S. E. Hafez for his encouragement and constant interest.

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A Canine Strangulated Stomach

An 8-year-old Doberman Pinscher had, in four hours, become distressed with a distended tympanitic abdomen. The dog was in a state of collapse, with a weak, fast pulse, subnormal temperature, and fast, shallow respiration.

A laparotomy was performed under nembutal[8] anesthesia, only a half dose being required. The stomach, distended with gas, filled the cavity from the diaphragm to the pelvis. Torsion was suspected but, instead, it was found that the spleen had somehow passed through the epiploic foramen of Winslow so that the gastrosplenic ligament strangulated both stomach openings. Due to passive congestion the spleen could not be replaced so a splenectomy was performed. The operation was completed but damage to the stomach wall, due to overdistention and impaired circulation, resulted in death. There was no history of trauma and the cause for the displaced spleen could not be determined.—*J. of South Africa, March, 1953.*

Hormones in Reproduction

It is important to remember that, normally, heat and ovulation occur together because two hormones, estrogen and the gonad-stimulating hormone, are secreted at the same time. Experimentally, if estrogen alone is given, it may produce heat without ovulation, while if a gonad-stimulating hormone alone is given, the female may ovulate without heat. Heat can be produced in spayed animals. Occasionally, each hormone alone may produce both heat and ovulation but not consistently. This explains why the use of estrogen treatment of ewes in the nonbreeding seasons produces such a small percentage of lambs.—*Successful Farming, Nov., 1952.*

Insemination from Excised Testes

On April 5, 1951, semen was collected, at castration, from the epididymis of a Palomino stallion. The semen was diluted with equal parts of 5 per cent glucose solution and egg yolk. The 330th day after this was used to inseminate a mare she gave birth to a normal Palomino foal.—*Southwestern Vet., Dec., 1953.*

Polled Herefords and Genetics

All domesticated animals have been improved by selection. Inheritance is dependent upon the genes and chromosomes in the germ cell. The genes occur in pairs which split, so that only one is transmitted in an ovum or sperm cell. However, genes are transmitted not alone but in groups called chromosomes, so that groups of characteristics are usually transmitted as a unit. In cattle, the polled gene is dominant so that individuals with one polled and one horned gene will be polled, but about half of their calves will be horned.—*Hereford J., July, 1953.*

A Prolific Goat.—An English doe born in 1911 produced 34 kids before her death in 1927. Her first 27 kids were all females. —*Dai. Goat J., June, 1953.*

Whole Blood Preserved by Freezing

The method of preserving whole blood in the frozen state for at least a year has been adopted from English originators and is being employed at the Harrison Department of Surgical Research of the University of Pennsylvania. Under previous methods, whole blood could be stored for only about twenty-one days. The new process uses glycerin to prevent the destruction of red cells in the frozen state. If the concentration of glycerin in the blood is between 10 and 20 per cent, rapid freezing at a –79 C. and rapid thawing at 40 C. leaves nearly all the red cells intact.—*Lab World, May, 1953.*

CLINICAL DATA

Experimental Evaluation of Culture and Serum Vaccination for the Control of Swine Erysipelas

I. Recapitulation of the Swine Erysipelas Problem

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Swine erysipelas became a disease entity as a result of the work of Pasteur, Thuillier, and Loffler in the 1880's. This was closely followed by investigations which threw light on the character of the etiological agent, the clinical manifestations prompting varied theories as to transmission of the disease, and the introduction of several methods of control through vaccination. One such method (method of Lorenz) is still in use since its inception in 1896. However, many questions remain to be answered, particularly in the field of epizoötiology.

One of the most intriguing problems that confronted investigators, and one which has been a real stumbling block to the study of this disease, was the inability to consistently reproduce, experimentally, the disease in swine. Because of this, there were some who questioned the status of swine erysipelas as a disease entity and suggested that it was a secondary disease with some other agent as the inciting cause. Failures to reproduce the disease in swine, as well as factors which entered into its idiosyncratic appearance in the field in the past, have generally been attributed to (1) varying virulence of the organism, (2) natural resistance of swine to infection through a genetic influence in particular breeds and families, (3) allergic organic state, (4) age, and (5) external conditions, such as the level of animal nutrition and chemical composition of the soil.

Investigations in this country paralleled the inconsistencies experienced in Europe, in that swine erysipelas could be reproduced experimentally, but not with desirable dependability or consistency.

Creech[1] was able to produce definite symptoms of swine erysipelas experimentally in 11 of 22 pigs subjected to different methods of exposure, of which 5 ended fatally. Prior to this experiment, all of the animals gave a negative reaction to the agglutination test for swine erysipelas. Schoening *et al.*[2] succeeded in producing, experimentally, a fatal infection in 6 of 9 swine by inoculation of splenic material, or with a culture from the spleen of a pig dying of erysipelas obtained during an acute outbreak of this disease in Nebraska. The 3 remaining pigs plus a contact developed the chronic form of the disease. Erysipelas organisms recovered culturally from the spleen of 1 of the pigs dead from the original inoculation were injected into another pig which subsequently died with acute swine erysipelas infection. However, when additional pigs were injected with cultures and splenic material held for a short time, no resulting disease was produced. Here again was raised the perennial question, was there a loss of virulency of the organism, or were these merely resistant pigs for some unexplained reason?

Experience has shown that a particular lyophilized strain of *Erysipelothrix rhusiopathiae* was lethal for a group of 4-day-old chicks, yet when used on 17-day-old chicks from the same hatch only 1 died.[3] Here surely, is manifested a physiological basis for resistance through age. Doyle[4] has shown that pigs previously immunized with crystal violet hog cholera vaccine, and challenged with regular virus later, show a greatly increased susceptibility to experimental infection with swine erysipelas organisms. Fortner[5] was able to demonstrate, in swine, a family resistance to percutaneous infection. The differentiation being based on survival with absence of generalization of the infection in the resistant line, and either death or generalization of the infection in the controls.

Beagle[6] is of the opinion, based on field observations, that a high protein ration, especially animal protein, predisposes the pigs to acute infection with swine erysipelas organisms. Michalka[7] states that a body hypersensitized against swine erysipelas organisms may develop an allergic organic disease, e.g. endocarditis, arthritis, or skin necrosis. Judging by the nature of the skin reactions following percutaneous infection (which will be mentioned later) and the early temperature spike after scarification, there may be a basis for be-

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lieving that allergy plays a part in the infective process of swine erysipelas within the meaning of Michalka. Van Es[8] sums up the situation in the field saying that "certain unknown influences and factors may bring about invasion by the organism with, now and then, actual disease as a result."

Preisz[9] was able to produce typical fetal erysipelas in 2, 5- to 6-week-old pigs by "inunction" of a virulent bouillon culture into a superficial scarification of the skin made by a fine needle. This intracutaneous method, as was suggested by Jenner's vaccination against smallpox, was applied in a practical manner by Böhme[10] as a means of immunization against swine erysipelas. He used a vaccine called "emphyton" which consisted of three *Ery. rhusiopathiae* cultures mixed together and then rubbed into one scarified area of the skin. It is mentioned that "cutaneous inoculation was practiced almost exclusively in Germany, and that up to the year 1926 more than 600,000 animals had been inoculated by this method."[11] However, the results were reported as contradictory, in which some mentioned "an even course of the inoculations, while others reported a large number of severe reactions. No results were obtained in Switzerland, and Graub made the observation that only those animals were immune in which there was a well-marked reaction."[11]

These are interesting observations when reviewed with today's understanding of the percutaneous exposure method as applied by Fortner and Dinter. It is probable that all four observations could be correct, because the percutaneous exposure of susceptible pigs can result in severe cutaneous and systemic reactions, of which a few will end fatally. Other pigs may manifest varying degrees of cutaneous and systemic reactions which denote a definite individual variance in resistance or susceptibility to infection. For these reasons, actually one should not necessarily expect to find consistency or sameness of reactions. It has been demonstrated that animals which show a cutaneous reaction and recover also become immune. It is our contention that when no reaction is experienced following percutaneous inoculation, there is being manifested an immunity to swine erysipelas infection.[12] This point in itself, if misunderstood at that time, would certainly lead to an erroneous interpretation of the failure to produce a cutaneous reaction.

The percutaneous or skin scarification method (of Fortner and Dinter) to induce consistent experimental swine erysipelas infection, as also reported on by Shuman,[12] consists of the application to linear scarifications on the side of a pig of virulent cultures of *Ery. rhusiopathiae*. This is followed by cutaneous and systemic reactions in susceptible pigs.

The subject then of experimentally inducing the infection brings up two important aspects of swine erysipelas. The first is the apparent difference in the manifestations of this disease in Europe and the United States. In this country, we have not experienced the high mortality, but do see much more of the chronic side of the disease. On the other hand, the Europeans speak of the urticarial form of swine erysipelas as a mild manifestation of the disease, whereas in this country this syndrome is frequently seen in the field (diamond skin disease) associated with the acute fatal form of the disease. The relationship between the different forms or clinical manifestations of swine erysipelas in this country may still require further exploration. We have induced experimentally, by the percutaneous method, acute symptoms with generalization of the infection in susceptible swine, but we have not experienced the high mortality which Fortner[13] experienced in his work. There must be some yet to be explained difference either in the nature of the pigs or the strains of the organism, since the methods are practically identical. The relative importance of inducing either a high percentage of fatal infections, or at least acute symptoms in susceptible pigs, is in the application of this method as a test in swine for susceptibility or immunity to swine erysipelas infection. Since we have been unable to induce a high percentage of fatalities by this method, we have assumed that a marked cutaneous reaction with generalization of the infection and systemic symptoms would, therefore, constitute our maximum challenge in the subsequent work to be reported.

The second aspect is that of absence of cutaneous or systemic symptoms in some swine following their first exposure to percutaneous infection. This has been mentioned previously as representing immunity to swine erysipelas infection. In addition, it can demonstrate the presence of swine erysipelas infection on a premise not only where it is known to exist but also where the infection is not suspected. When experienced with normal appearing swine, it brings up the idea of subclinical infection. This may help to explain the inconsistencies observed in the past in this disease in the field, and also gives added meaning to past serological and bacteriological studies.

Studies of a disease in the field, relative

to its prevention or control, depend upon measurable natural occurring outbreaks, both in herds and in individual animals on the farms under observation. The manifestations of swine erysipelas may vary considerably. It may occur as an acute disease with severe, few, or no losses in the herd, and in individual animals and ranging downward in severity from acute or subacute to the chronic, with cardiac lesions or the arthritic form of the disease. Progressing further, it is recognized that swine erysipelas can be present, or known to have been present, on a farm, and yet for unknown reasons no flare-up is experienced for several seasons. Also, swine erysipelas can exist on a farm in low grade form and thus go unrecognized until again for some unknown reason an acute outbreak is experienced. It is not illogical to believe that if swine erysipelas is present in a herd in a subclinical form, some animals could acquire an immunity. In field evaluation of biological products, this variable would be impossible to rule out.

That swine erysipelas organisms can exist in the normal appearing host was shown by Dale,[16] who isolated the organism in 11 of 15 pairs of tonsils of swine which gave positive agglutination reactions, and in three of 48 pairs of tonsils of swine which were negative. Van Es[15] mentions that European workers had recovered the swine erysipelas organism from the gall bladder of swine which had had either light or severe forms of the disease; that it was recovered from the intestine of 26 of 66 healthy hogs, and from 28 tonsils of 50 swine; and also from the mucous plugs within the crypts of the ileocecal valve. It is, therefore, conceivable that if the organism can exist in the animal's tissues, it could also set up an infective process of a benign nature, which would result in a naturally acquired immunity. Grey, *et al.*[10] expressed this opinion with regard to animals which have a positive agglutination reaction but which show no clinical evidence of the disease. Though a positive agglutination test would not necessarily be associated with immunity, study along this line is now possible through the use of the percutaneous method of exposure.

The subclinical aspect of swine erysipelas was illustrated in an experience by Harvey[17] when selecting experimental swine for percutaneous exposure work. Clinically normal animals were selected from a farm where there had been no history of swine erysipelas, yet a group of these animals gave no cutaneous or systemic reaction when exposed to percutaneous infection with strains of the swine erysipelas organism of known ability to induce cutaneous and systemic reactions.

The picture of swine erysipelas, then, is one wherein definite signs and symptoms can be manifested in varying degree of severity, or may even be unrecognized in what is best described as a subclinical form, with the result that 1 or more pigs in a herd could acquire immunity through natural infection.

SUMMARY

A brief history with today's approach to the understanding of the swine erysipelas problem is presented. Swine erysipelas has long been recognized as a complex disease, and has presented many avenues for study, but until the advent of the percutaneous or skin scarification method of exposure, most of these avenues were blocked. One such line of study was the laboratory evaluation of the simultaneous culture-serum method of vaccination for the control of this disease in swine. Such a study was undertaken in 1951 with this object in view, and is now being presented in subsequent papers.

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II. Baby Pig Vaccination

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The vaccination of swine in the United States, using a living virulent culture of *Erysipelothrix rhusiopathiae*, with hyperimmune serum of equine origin, had its inception in Nebraska in 1938, under the guidance of Dr. L. Van Es with the cooperation of members of the Bureau of Animal Industry and practitioners within the state. From this starting point, there developed the extensive coöperative state and federal program for the control of swine erysipelas, which at the present time includes 26 states. Last year, 3,162,632 animals were vaccinated under the provisions of this program.[1]

At the beginning of the coöperative program, a comprehensive field experimental study was initiated to determine the efficacy of this method of control. A report covering ten years, and more than 12,000,000 animals vaccinated by this method, was made in 1948 by Dr. J. E. Peterman, *et al.*[2] This report revealed that culture-serum vaccination was of value in helping check the economic inroads of this disease in swine.

One of the recognized obstacles at the time in evaluating culture-serum vaccination was the inability to experimentally infect swine consistently, so that the only recourse possible was through field evaluation. However, with the advent of the percutaneous method of exposure introduced by Fortner and Dinter,[3] this particular obstacle has been removed and experimental investigations on a laboratory basis made possible.

Preliminary studies by the Bureau of Animal Industry[4] showed that by the percutaneous or skin scarification method of exposure, systemic and cutaneous manifestations of swine erysipelas could be consistently induced in susceptible swine with American strains of *Ery. rhusiopathiae*. By this method, immunity was also demonstrated upon rescarification of those animals which had reacted to the initial cutaneous infection.

With this as a basis, experimental laboratory evaluation of the culture and serum vaccination for the control of swine erysipelas was undertaken. It was also anticipated that the information to be derived from this work would aid in the comparative evaluation of new vaccination techniques, which are presently in use in Europe.

Our first object was to establish the duration of immunity in baby pig vaccinates, originating from a swine erysipelas-infected premise, using the percutaneous or skin scarification method of exposure.

MATERIALS AND METHODS

Weaned pigs were obtained from the swine section of the animal husbandry division, Agricultural Research Center, Beltsville, Md. The history of this herd shows that at one time it was confronted with the problem of chronic swine erysipelas infection which could not be held in check with serum alone. Consequently, culture and serum vaccination was introduced and has now been practiced rountinely for several years. The manifestations of swine erysipelas are seen only occasionally in the arthritic form, which at the same time furnishes evidence that the infective potential is still present on the premises.

All pigs were vaccinated routinely as "baby pigs," between the second and fifth days after farrowing, with culture and serum, and vaccinated for hog cholera with virus and serum between the fifth and seventh week of age. The vaccination procedures on this series of pigs were conducted by Dr. Earl,** veterinarian for the animal husbandry division.

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A total of 175 pigs of mixed breeding were obtained and tested. The first series of 132 pigs were a miscellaneous lot, while the second series of 43 represented six entire litters. These six litters were scarified along with their respective dams in order to find out the immunity status of the sows as well as their litters. Because of the findings in these tests, 9 additional sows originating from the swine section were tested. All animals were on the same basic ration containing an antibiotic (aurafac) at the rate of 6 lb. per ton of feed.

seventh week. Along with each group, there was included a nonvaccinated animal which had been raised on the premise of the animal disease station to serve as a culture control.

Classification of the result of scarification was based on the following factors: (1) Absence of local reactions were classified as complete immunes (I); (2) local reactions which did not persist or become extensive, yet could not be considered negative, were classified as incomplete immunes (II); (3) local reactions on one or all scarification lines, that did persist and become

TABLE I—Evaluation of Culture and Serum Vaccination of Baby Pigs by the Percutaneous or Skin Scarification Method

Scarified weeks after vaccination	No. of pigs tested	I (No.)	II (No.)	S(L) (No.)	S(G) (No.)	S (No.)	Ratio of I+II to S	Per cent showing protection
8, 9, 10	104	19	20	63	2	65	39 to 65	37.5
11, 12	30	4	0	15	11	26	4 to 26	15.3
13 to 27	41	6	0	8	27	35	6 to 35	14.6
Culture controls	10	0	0	4	6	10		

I = complete immunity; II = incomplete immunity; S = susceptible; S(L) = susceptible, local reaction; S(G) = susceptible, generalized reaction.

For vaccinating, commercially produced biological products were used throughout, with a standard dosage of 0.25 cc. of culture (desiccated) and 5.0 cc. of antiserum administered subcutaneously in the right and left axillary spaces. Company A hyperimmune serum, serial lot 1, was used on all but 16 pigs in the series of 132; the 16 received company A serum, serial lot 2. Serial lot 1 passed the Bureau of Animal Industry standard potency test in mice; however, we were unable to obtain a sample of serial lot 2 for a potency test. Company A (desiccated live culture vaccine) serial lots 1 and 2 were used in this series. Although some inconsistency was experienced in the virulency test of these cultures in mice and pigeons, the tests would permit passing of the serial lots "for release." Company B hyperimmune serum, and company C desiccated live culture serial lot 1 were used on the series of 43 pigs, and both products met test requirements "for release."

Demonstration of either immunity or susceptibility was based on the percutaneous or skin scarification method of exposure. Four lyophilized strains of *Ery. rhusiopathiae* were used throughout the series, and identified as S192, HC585, 422-1, and NF4. These exposure strains were reconstituted in broth and incubated for twenty-four hours at 37 C. prior to use. The cultures were always placed in the same sequence on the side of a pig, varying from either the right or left side. Observations were made at least four times during the week following scarification in order to follow the course of the cutaneous reactions. Temperatures were recorded twice daily.

Pigs in this series were scarified in groups following vaccination, beginning at the time of weaning (8 weeks) and ending with the twenty-

extensive, were classified as susceptible (S); the susceptibles were then divided into those reactions that remained localized (SL), and those that demonstrated generalization (SG), e.g. when one or more individual rhomboid- or diamond-shaped lesions appeared on areas of the skin not associated with the actual area of scarification. It has been our experience that we can not expect the high rate of mortality following scarification as is reported in Europe; so the most severe reactions that we could induce, served our purpose.

While making the observations, it was seen that strain S192 usually induced a more severe cutaneous reaction than did the other three. This, however, was subject to some variation which indicated the necessity of multiple scarification using several strains of the organism. This difference in degree of cutaneous reaction was of particular significance in that the final status of an animal was sometimes determined on the basis of the reaction to just one strain. For example, if strain S192 gave a "S" reaction and the other three strains gave either an I or II, the final status of the pig was classified as susceptible (S) whereas without the reaction of S192, the status would have been immune (I) or incomplete immune (II). Pigs showing a final status of I and II were judged as showing protection against swine erysipelas infection, and those showing a S reaction were judged as being susceptible. For the sake of brevity, a table showing vaccination data, and the individual reactions to the four strains used on each pig, is not presented.

EXPERIMENTAL RESULTS

The results of scarification on 175 pigs

(*see* table 1) vaccinated between the second and fifth day after birth with culture and serum demonstrated that 37.5 per cent of the pigs were showing protection when scarified on the eighth, ninth, and tenth week after vaccination. During the eleventh and twelfth weeks after vaccination, only 13.3 per cent were showing protection. Pigs scarified on the thirteenth through the twenty-seventh week after vaccination served to illustrate further the weeks after vaccination, there were some pigs that were protected as a result of immunity through natural or acquired infection, rather than from vaccination procedures. This is suggested by our finding an occasional immune pig scarified on the thirteenth through the twenty-seventh week after vaccination, and particularly so in 4 pigs which were scarified in the twenty-fifth week. These particular pigs were litter mates, of which 1 was normal appear-

TABLE 2—Scarification of Mature Sows from Swine Erysipelas-Infected Premise

Culture controls	Sow (No.)	Date scarified	Age in months	Exposure cultures S192	HC585	422-1	NF4	Final status	Status of litter
	1387	4-15-52	18	I	I	I	I	I	S
	2765	4-15-52	18	S	S	S	S	S(L)	S
	2596	4- 1-52	18	I	I	I	I	I	S
	1381-S	4- 1-52	18	I	I	I	I	I	I
	1163	4- 1-52	18	I	I	I	I	I	S
	1510	4- 1-52	18	I	I	I	I	I	S
	1775	9- 3-52	18	I	I	I	I	I	None
	1184	9- 3-52	18	I	I	I	I	I	None
	2764	9- 3-52	18	I	I	I	I	I	None
	2563	9- 3-52	18	I	I	I	I	I	None
	1567	9- 3-52	18	I	I	I	I	I	None
	1417	9- 3-52	18	I	I	I	I	I	None
	1814	9- 3-52	18	S	II	II	II	S(L)	None
	1938	9- 3-52	18	I	I	I	I	I	None
	6606	9- 3-52	42	I	I	I	I	I	None
9552		4- 1-52	—	S	S	S	S	S(G)	—
143		4-15-52	—	S	S	S	S	S(G)	—
46		9- 3-52	—	S	S	S	S	S(L)	—

lack of persisting immunity, yet at the same time presented some interesting data which will be discussed later relative to immunity from natural or acquired infection.

Upon scarification of the 6 sows and their litters, 5 of the sows were found to be completely immune and 1 susceptible (*see* table 2). Five of their litters were susceptible, and only 1 immune eight weeks after vaccination.

Scarification of the 9 additional sows showed that 8 were completely immune and 1 was susceptible.

All animals included in this series as "culture controls," demonstrated susceptibility, of which 6 showed generalization and 4 remained local in their reactions.

DISCUSSION

From these tests, it was shown that the majority of the baby pigs vaccinated were not protected as weanlings and that only a very few were protected beyond the twelfth week after vaccination. It is also quite probable that within the 37.5 per cent showing protection eight, nine, and ten ing while the other 3 were large-jointed, crippled, rough-appearing, stunted animals, presenting a clinical picture of chronic swine erysipelas. No reaction was observed in these 4 pigs following scarification, indicating complete immunity. This fact, plus the clinical picture before scarification, the long lapse of time between vaccination and scarification, and the herd history, indicates, although it does not serve as proof, that these 4 pigs acquired immunity through natural infection, and not from vaccination.

Additional evidence that there was an acquired immunity, through natural infection, in this herd is based on the result of scarification of 15 clinically normal sows of which 13 were completely immune, and 2 susceptible but with only local reactions. Though these sows had been vaccinated as baby pigs, as can be judged from this study this immunity, which was demonstrated at maturity, could not have been derived from the baby pig vaccination.

The factor of immunity from natural infection in subclinical form offers one reason why experimental reproduction of the disease in the past has been fraught

with so much difficulty, for obviously, already immune animals would not be suitable for transmission experiments.

SUMMARY

Vaccination of baby pigs, on this infected premise, with culture and serum two to five days after farrowing was of no value in protecting growing pigs up to market age, and was of limited value in protecting the weanlings.

The presence of an acquired immunity through subclinical infection offers an explanation for some of the inconsistencies and failures to transmit this disease experimentally in swine in the past.

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III. Weaning Age Vaccination

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It was established that baby pig vaccination against swine erysipelas in the swine section herd, using culture and antiserum, did not furnish protection to the average marketable age of 5 to 7 months.[1] In an earlier experiment, however, complete immunity of four months' duration had been demonstrated, by the percutaneous method of exposure, in a small group of pigs vaccinated with culture and antiserum at approximately 6 months of age.[2] This suggested that vaccination of somewhat more mature animals might be more successful. Since the problem of protecting growing pigs still remained, pigs of weaning age were vaccinated.

MATERIALS AND METHODS

Weanling pigs for this experiment were, for the most part, obtained from the nutrition section herd, animal husbandry division, plus several additional litters raised at the animal disease station, Beltsville, Md. Vaccination for either swine erysipelas or hog cholera was not practiced before or during the time the pigs were received from the nutrition section, and there was no history of swine erysipelas in the herd. Crystal violet hog cholera vaccine is now (1953) being used in the breeding animals. A boar this spring (1953), though manifesting clinical symptoms suggestive of swine erysipelas, could not definitely be said to have such for the causative organism could not be recovered following death. One litter raised at the animal disease station did have a history of exposure to swine erysipelas infection, and will be discussed later.

Commercial desiccated live culture vaccine and hyperimmune serum was used, and standard Bureau of Animal Industry tests on the serial lots showed them to be satisfactory for release. The dosage was that recommended on the label, which is 0.25 cc. of culture and 5.0 cc. of serum for 50-lb. pigs and under. The simultaneous injections were made subcutaneously in the axillary spaces.

In this experiment, 161 crossbred pigs with a predominence of Chester White and Landrace blood were used. They represented from 1 to all of the pigs in 48 litters. Of this number, 116 were vaccinated at an average age of 58 days, with 45 left unvaccinated to serve as contact controls. Each group of pigs scarified was made up of all or parts of two or more litters. Groups were tested at varying intervals from the forty-first to the 186th day after vaccination.

The pigs were in pens on concrete floors, and were fed a well-balanced ration which contained an antibiotic (aurafac) at the rate of 6 lb. to a ton of feed.

Demonstration of immunity or susceptibility was again based on the percutaneous or skin scarification method,[3] using, as before, the lyophilized strains S192, HC585, 422-1, and NF4. These exposure strains were reconstituted in nutrient broth and incubated at 37 C. for twenty-four hours prior to use. The cultures were always placed in the same sequence on the side of the pig, though varying at times from side to side. No deviation in the actual scarification technique was made. A minimum of four observations were made following exposure, and the results were classified as: complete immune (I), incomplete immune (II), susceptible (S), which in turn was divided into either a localized (SL), or generalized (SG) reaction. Those pigs which showed either a complete or incomplete immune reaction were considered as "showing protection," in making an analysis of the data.[4]

EXPERIMENTAL RESULTS

Variations in the results of the percutaneous test were recorded. These variations showed up on an individual basis, as

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TABLE 1—Weanling Vaccinated Pigs Showing Protection* or Susceptibility to the Percutaneous Method of Exposure at Varying Intervals After Vaccination

Vaccinates (No.)	Tested days after vaccination	I	II	S	S(L)	S(G)	Per cent showing protection	Weeks after vaccination	Per cent showing protection
7	41	2	2	3	3	0	57.1		
8	68	7	0	1	1	0	87.5	6-10	73.3
4	93	0	4	0	0	0	100.0		
28	96-99-100	15	3	10	10	0	64.2	13-15	69.2
7	102-103	3	2	2	2	0	71.4		
8	127	7	0	1	1	0	87.5		
14	143	8	3	3	3	0	78.5	18-22	58.5
12	146-151	5	0	7	6	1	41.6		
7	153	1	0	6	5	1	14.2		
12	158-159	3	1	8	8	0	33.3		
5	173	3	0	2	2	0	60.0	23-27	47.6
4	186	3	0	1	1	0	75.0		
Total 116		57	15	44	42	2			

*Complete + incomplete immunes = protection; I = complete immune; II = incomplete immune; S = susceptible; S (L) = susceptible (localized); S(G) = susceptible (generalized).

well as on a litter and group basis, when tested at the same approximate interval after vaccination. After assembling the vaccinates into weekly groupings, which we believed would better express the duration of protection to percutaneous infection, it was found that: six to ten weeks after vaccination 73.3 per cent of the vaccinates were showing protection; at thirteen to fifteen weeks, 69.2 per cent; at eighteen to twenty-two weeks, 58.5 per cent; and at twenty-three to twenty-seven weeks, 47.6 per cent (*see* table 1).

TABLE 2—Comparison Between the Results of Percutaneous Exposure of the Vaccinates and Nonvaccinated controls

	I	II	S	S(L)	S(G)
	Vaccinated Pigs				
Number	57	15	44	42	2
Per cent	49.1	12.0	37.9	36.2	1.7
	Nonvaccinated Pigs				
Number	1	0	44	8	36
Per cent	2.2	0	97.7	17.7	80.0

Despite the fact that a substantial number of the vaccinates were susceptible to percutaneous infection, only 2 of 44 susceptibles showed evidence of generalization of the infection, while of the nonvaccinated controls, 36 of 44 demonstrated evidence of generalization of the infection. This contrast we believe illustrates that the susceptible vaccinates were carrying some definite, though submarginal, protection to percutaneous infection (*see* table 2).

When one considers that the average marketable age of pigs in this country is 5 to 7 months (150-210 days), and that these pigs were all vaccinated at an average age of 58 days, it can be seen that 58.5 per cent of the pigs tested within this age group (175-211 days), derived protection to percutaneous infection with virulent swine erysipelas organisms (*see* table 1, column 10). Though the percentage show-

TABLE 3—Variations in Individual Response Within Litters to Immunization with Culture and Serum

Litter	Tag (No.)	Weaning weight	Scarified after vaccination	Exposure strains S192	HC585	422-1	NF4	Results
Q	208	30	41 days	II	II	II	II	II
Q	213	20	41 days	S	I	I	S	S(L)
Q	210	35	41 days	I	I	I	I	I
Q	211	25	41 days	S	II	I	S	S(L)
Q	212	35	Not vaccinated	S	S	S	S	S(G)
Q	209	25	Not vaccinated	S	S	S	S	S(G)
T	225	50	41 days	I	II	II	II	II
T	252	50	41 days	S	S	S	S	S(L)
T	253	50	41 days	I	I	I	I	I
T	251	50	Not vaccinated	S	S	S	S	S(L)
U	266	20	102 days	S	S	S	II	S(L)
U	267	25	102 days	I	I	I	I	I
U	269	25	102 days	II	II	II	I	II
U	270	20	102 days	S	II	II	II	S(L)
U	271	25	Not vaccinated	S	S	S	S	S(G)
U	272	20	Not vaccinated	S	S	S	S	S(G)

I = complete immune; II = incomplete immune; S(L) = susceptible (localized); S(G) = susceptible (generalized).

ing protection decreased after this time, 47.6 per cent were still showing protection at 7 to 8 months of age (216-244 days).

It was shown in a preceding paper[1] that, when 41 baby pigs were tested thirteen to twenty-seven weeks after vaccination, only 6 (14.6%) were showing protection; whereas, out of 101 weanling pigs tested in the same period after vaccination, 61 (61%) were showing protection.

DISCUSSION

The variation in the test results of the vaccinated pigs clearly indicates that there was an inconsistency in the receptiveness and/or immunizing response to culture-serum vaccination. This inconsistency was on an individual, as well as a litter, basis (*see* tables 3 and 4), and would account for the irregularity in the "per cent showing protection" tested at various intervals of days after vaccination (*see* table 1, column 8).

No explanation is offered for this variation, except that while in some pigs a benign infection is set up, other pigs, due to their own inherent make-up, apparently are able to resist the infective potential of the live culture vaccine, and would be assisted in this by the simultaneous injection of hyperimmune serum. Two possible factors which might account for this variation were examined: (1) the weight of the pigs at time of vaccination, and (2) the presence of atrophic rhinitis. However, in both instances a review of the work did not furnish evidence to support the possibility of either of these factors having any influence on the vaccination procedures. Hagan[4] describes the situation by saying that, "antibacterial immunity is much more apt to be partial, more variable, and less effective than antitoxic immunity."

This experimental work reports 1 nonvaccinated control that was found to be immune upon scarification. This suggested the possibility of infection being derived from the shedding of organisms from the vaccinated litter mates in the same pen. However, since the other nonvaccinated control in this pen was not only susceptible but exhibited a generalization of the infection, and because of a possible error in identity, due to a similarity in ear tag numbers, the litter was included in the series.

TABLE 4—Variations in Response by Litters to Immunization with Culture and Serum

Litter	Tag (No.)	Weaning weight	Scarified after vaccination	Exposure strains S192	HC585	422-1	NF4	Results
D	57	50	93 days	II	II	II	II	II
D	64	45	93 days	II	II	II	I	II
D	55	50	93 days	II	II	II	II	II
D	58	45	93 days	II	II	II	II	II
D	62	45	Not vaccinated	S	S	S	S	S(G)
E	53	45	96 days	S	S	S	S	S(L)
E	51	50	96 days	S	S	S	S	S(L)
E	48	45	96 days	S	S	S	S	S(L)
E	54	40	Not vaccinated	S	S	S	S	S(L)
4	9554	25	96 days	I	I	I	I	I
4	9555	20	96 days	I	I	I	I	I
4	9556	30	96 days	I	I	I	I	I
4	9557	35	96 days	I	I	I	I	I
4	9558	40	Not vaccinated	S	S	S	S	S(G)
4	9559	35	Not vaccinated	S	S	S	S	S(G)

ture vaccine and hyperimmune serum. These pigs were subsequently tested at intervals for immunity or susceptibility by the percutaneous method of exposure. Worth-while protection was demonstrated in these growing pigs up to and through the average marketable age of 5 to 7 months.

A comparison of baby and weanling pig vaccination by the percutaneous skin test, thirteen to twenty-seven weeks after vaccination, serves to illustrate further the usefulness of the culture-serum vaccination at weaning age. It also demonstrates the value of the percutaneous test for indicating the immunity or susceptibility in swine.

SUMMARY

Weanling pigs were experimentally vaccinated with commercial desiccated live cul-

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Swine Erysipelas. II. Baby Pig Vaccination. J.A.V.M.A., *123*, (1953): 304.

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Postmortem Examinations of Chinchillas

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The growing chinchilla industry throughout the United States and Canada has increased the need for necessary veterinary services with this animal. It is, therefore, believed that some statistical data pertaining to the predominating causes of death would be of interest to those veterinarians who are called upon to treat the chinchilla.

The laboratory had performed 1,005 postmortem examinations upon chinchillas prior to June 20, 1949; 527 were males and 478 females. The distribution according to general diagnosis and age is given in table 1.

From the Brenon Laboratory, Inglewood, Calif.

SUMMARY

In view of the statistical findings (table 1), it is obvious that diseases of the lungs, gastrointestinal tract, and liver are predominant in the chinchilla. Therefore, research regarding the cause, control, and treatment of these conditions is indicated.

A New Record for Pigs Saved

The number of sows farrowing in the spring of 1953 was 12 per cent below the year before. Yet, the nation's spring pig crop was only 10 per cent smaller. The number of pigs saved per litter was 6.81, the highest on record and 3 per cent more than the previous record of 6.64 saved in 1952.

The fall farrowing is expected to be 5 per cent below that of a year ago, so the 1953 total should be 8 per cent below 1952 and 11 per cent below the 1942 to 1951 average. In Texas, the spring pig crop was 39 per cent below a year ago and less than half of the ten-year average.—*The Cattleman, Aug., 1953.*

TABLE 1—Diseases Diagnosed in Chinchillas Which Were Autopsied Prior to June, 1949

Classified diagnosis	Total deaths* from	Age (years)										
		Less than 6 mo.	1	2	3	4	5	6	7 or 8	9 or 10	11 or over	Not known
Total autopsies	1,005	258	210	130	87	48	47	19	15	1	5	185
Lobar pneumonia	250	68	61	34	17	6	10	2	6	1	....	45
Acute epidemic gastroenteritis	234	60	48	29	12	13	6	3	2	....	....	61
Acute impaction	126	29	20	16	12	6	8	2	1	0	2	30
Gastroenteritis	85	22	16	11	10	3	4	3	0	0	1	15
Pneumonitis	72	21	11	9	7	5	3	3	2	0	1	10
Ulcerative colitis	38	5	12	6	5	2	3	1	1	0	0	3
Traumatic injury	21	14	2	0	0	1	2	0	1	0	0	1
Hepatitis	16	2	1	3	2	0	1	0	0	0	0	4
Empyema	16	7	4	1	2	0	0	0	1	0	0	1
Poisoning	15	4	5	2	1	0	1	....	....	....	....	2
Intussusception	14	1	1	3	4	1	1	....	....	....	1	2
Pyloric stenosis	12	1	3	0	3	2	1	1	....	....	....	1
Toxic abortion	9	....	3	2	1	....	....	....	....	....	....	3
Peritonitis	8	1	2	2	....	....	1	1	....	....	....	1
Tuberculosis	7	2	1	1	2	....	1	....	....	....	....	....
Liver necrosis	5	1	1	....	....	1	....	....	....	....	....	....
Toxemia	5	2	....	....	....	1	1	....	....	....	....	1
Silicosis	5	....	....	1	1	....	2	1	....	....	....	....
Virus pneumonia	4	2	2	....	....	....	....	....	....	....	....	....
Liver cirrhosis	4	1	1	1	1	....	....	....	....	....	....	....
Gangrenous enteritis	4	1	1	....	....	1	1	....	....	....	....	....
Nephritis	3	....	....	1	1	....	....	....	1	....	....	....
Amoebic dysentery	3	....	....	1	....	1	1	....	....	....	....	....

*In addition, 4 deaths were caused by starvation; 2 each by brain injuries, septicemia, yellow atrophy of the liver, ruptured stomach, and gastritis; and 1 death each by ruptured gall bladder, acute uremia, nonpatent lungs, heat shock, pneumonoconiosis, strangulated bowel, furunculosis, suffocation, fibrosis of the uterus, pyloric gangrene, otitis media, ruptured aorta, and ruptured echinococcus cyst. The remaining 12 animals died of undetermined causes.

Various Contrast Mediums in Canine Myelography

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THE USE OF contrast mediums in myelography has been reported by a few veterinary investigators.[1,2,3,5,6] Although their use has greatly facilitated the location of extradural compressions in the spinal column, the effects of these mediums are not entirely harmless. This damage tends to be a mild fibrotic leptomeningitis since the total aspiration of these mediums after the completion of diagnostic procedures is most difficult. Therefore, it has been the purpose of this research to test additional radiopaque substances in myelographic diagnostic procedures from a radiological, clinical, and pathological viewpoint. This work was carried on in clinically normal dogs.

MATERIALS USED

The radiopaque substances introduced in the subarachnoid space by the author in previous investigations were pantopaque an thorotrast.[4] Both of these substances were satisfactory radiologically; however, thorotrast tended to be toxic clinically, especially if allowed to enter the cranial subarachnoid space. Thorotrast consistently caused a subclinical leptomeningitis, Pantopaque was safe clinically but also tended to produce a mild subclinical leptomeningitis. The additional agents tested and reported on in this paper are neo-ipax® (75%),* iodochlorol,** skiodan® (20%),† lipiodol,‡ and diodrast® (35%).†

Neo-ipax (75%) is a disodium salt of N-methyl-3,5-diiodo-chelidamic acid, a pyridine derivative containing 51.5 per cent of iodine in close organic combination. It is freely soluble in water and is furnished in 50 per cent and 75 per cent concentrations. Neo-ipax is used chiefly for intravenous urography and retrograde pyelography.

Iodochlorol is a brand of chloriodized oil, containing 27.0 per cent of iodine and 7.5 per cent of chlorine in an organic combination with a highly refined peanut oil. It is used for outlining any hollow viscus, such as the accessory nasal sinuses, the bronchial tree, the genito-urinary tract, fistulas, and soft tissue sinuses.

Skiodan sodium is a brand of methiodol sodium (sodium iodomethanesulfonate), a white crystalline organic compound powder containing over 52 per cent of iodine firmly combined and soluble in water. The preparation used was a 20 per cent solution of skiodan sodium. This product is used for intravenous urography, retrograde pyelography, and also for direct injection into the gall bladder.

Lipiodol lafay is a stable iodine addition product of poppyseed oil. Each cubic centimeter contains 540 mg. (40% by weight) of iodine. This product is used for radiographic visualization of hollow viscera, sinus, and fistula tracts, as well as in myelography.

Diodrast is 3,5 diiodo-4-pyridone-N-acetic acid diethanolamine, containing about 50.0 per cent of iodine in firm combination. This product has gained widespread use in intravenous urographic excretion and for retrograde pyelography.

PROCEDURE AND RESULTS

The various agents were administered to mongrel dogs in the spinal subarachnoid space. The amount of each medium to be injected was based on body weight. Laboratory examinations of the blood and spinal fluids were made at regular intervals, temperature and clinical observations were recorded daily, and histopathological sec-

Fig. 1—Neo-ipax (75%), when administered in the cisterna magna, gives a good cervical radiopaque image, but it is not radiopaque in the lumbar area when given a chance to migrate posteriorly.

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*Neo-Ipax is produced by Schering, Bloomfield, N. J.

**Iodochlorol is produced by Searle, Chicago, Ill.

†Skiodan and diodrast are products of Winthrop-Stearns, Inc., New York, N. Y.

‡Lipiodol is produced by E. Fougera & Co., New York, N. Y.

Fig. 2—Iodochlorol has been administered into the 13T-1L subarachnoid space. Because this substance does not migrate well, it must be injected close to the area to be studied.

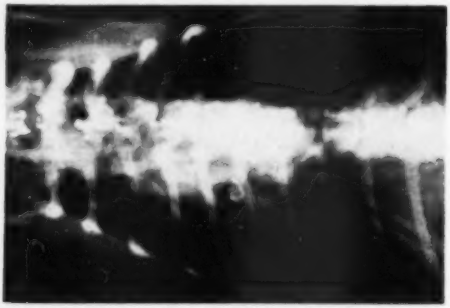

Fig. 3—Lipiodol, when administered in the cisterna magna, migrates posteriorly in a globular fashion.

tions were taken from the same areas in each animal. The detailed results for each experimental animal are given.

Neo-Ipax (75 Per Cent Solution).—This agent was administered (4 cc. in the cisterna magna) to a 33-lb. male hound, 2 or 3 years of age. Periodic radiographic examinations gave a satisfactory cervical shadow (fig. 1) but produced a very faint thoracolumbar image. The dog showed nervous tremors and partial opisthotonus, indicating a meningeal irritation. Twenty-four hours later, the dog still showed some soreness and stiffness, and a temperature one degree above normal. In forty-eight hours, the reaction had disappeared, and in the postinjection period of twenty-one days,

Fig. 4—Diodrast (35%) administered in the cisterna magna gives a satisfactory cervical shadow but does not maintain its radiopacity upon descending to the lumbar subarachnoid space.

TABLE I—Radiopaque Mediums Administered Subarachnoidally

Substance	Location of injection	Amount per injection	Radiopacity of substance	Clinical	Toxicity		Remarks
					Laboratory	Histological section	
Neo-ipax (75%)	cisterna	4 cc.	faint	marked	Inc. w.b.c. in spinal fluid	lepto-meningitis	Not satisfactory for cisternal injection.
	5-6L	4 cc.	satisfactory	slight	Sl. Inc. w.b.c. in spinal fluid	same	More satisfactory for lumbar injection.
Skiodan (20%)	cisterna	3 cc.	none	moderate	Inc. w.b.c. in spinal fluid	normal meninges	Not satisfactory.
	13T-1L	3 cc.	none	moderate	same		Not satisfactory.
Iodochlorol	cisterna	2 cc.	excellent	none	Inc. w.b.c. in spinal fluid	lepto-meningitis	Not satisfactory diagnostically because of extreme slow progression.
	13T-1L	2 cc.	excellent	none	Inc. w.b.c. in spinal fluid		
Lipiodol	cisterna	2 cc.	good	none	Sl. inc. w.b.c. in spinal fluid	some lepto-meningitis	Not very satisfactory because of globule dispersion in its progression. More satisfactory in lumbar injection.
	13T-1L	2 cc.	good	none	same		
Diodrast (35%)	cisterna	3 cc.	fair	convulsions and death	.....	.....	Not satisfactory.
	cisterna	3 cc.	not checked	same	.....	normal in cervical section	Not satisfactory.

no temperature elevation was seen (tables 1, 2).

Upon autopsy, the spinal cord appeared normal, and cord sections from the first cervical, first lumbar, and fourth lumbar positions demonstrated round cell infiltration and fibrosis in the leptomeningeal spaces.

Because of a mistake in procedure, the preëxperimental plan of a 13T-1L injection, in addition to cisternal administration in the same dog, was not followed. Therefore, this substance was also administered to a 3-year-old mixed Scottish Terrier-type dog which weighed 30 lb. No spinal fluid was available at the 13T-1L interspace, so 4 cc. of neo-ipax was given at the 5-6L interspace. A satisfactory shadow was seen on the lumbar myelogram. Very little clinical reaction was seen and no temperature elevation was observed in the postinjection period (table 1, 2).

Upon autopsy, the spinal cord looked normal, and cord sections (1C, 1L, and 4L) showed similar changes as in the first experimental dog.

Skiodan Sodium (20 Per Cent Solution).—This substance was used on a 5-year-old male mixed Collie-type dog weighing 27 lb. Three cubic centimeters was given in the cisterna magna. No distinct shadow was seen in the lumbar, thoracic, or neck region. An additional 2 cc. of skiodan was given at the 13T-1L interspace in the subarachnoid space, and no lumbar shadow was seen in this radiogram. Clinical muscle tremors and a mild convulsion were seen upon injection of this material. The following day, the dog still demonstrated some nervous irritability. Temperature readings were normal during an eighteen-day postinjection period.

The spinal cord looked normal on autopsy. The section at the first cervical region demonstrated a slight leptomeningitis. Sections at the first and fourth lumbar regions were normal.

Iodochlorol.—This agent was given to a 2-year-old male dog of mixed breeding which weighed 16 lb. Two cubic centimeters in the cisterna magna gave a pronounced radiographic shadow. The dog showed no clinical symptoms upon or after the injection. The material stayed localized in the cervical region and migrated posteriorly very slightly upon tilting the dog.

On the eighteenth day, 2 cc. of iodochlorol was given in the subarachnoid space at the 13T-1L interspace (fig. 2). The material migrated to the 7L vertebra and a distinct radiographic shadow was seen (tables 1, 2).

On autopsy, small yellow droplets of iodochlorol were demonstrated in the subarachnoid space. Cord sections from the first cervical and first lumbar positions demonstrated some large macrophages, round cells, and fibrosis in leptomeninges. The fourth lumbar sections appeared normal.

Lipiodol.—Two cubic centimeters of lipiodol was injected into the cisterna

TABLE 2—Results of Administration of Various Radiopaque Mediums

Laboratory results	r.b.c.	w.b.c.	Segments	Bands	Lymphocytes	Monocytes	Eosinophils	w.b.c. in spinal fluid
			Neo-Ipax (a)					
Preinjection	5,170,000	10,250	50	0	45	0	5	2/cmm.
7 day	5,000,000	19,650	32	2	65	1	0	65
14 day	5,500,000	18,000	40	5	55	0	0	20
21 day	5,550,000	15,000	50	0	45	0	5	3
			Neo-Ipax (b)					
Preinjection	6,230,000	23,800	72	0	26	0	2	2
14 day	6,000,000	20,000	65	2	30	0	3	15
			Skiodan					
Preinjection	5,370,000	19,450	50	14	26	2	8	0
7 day		16,350	50	1	40	3	6	500
14 day		15,000	55	0	40	1	4	44
21 day		14,000	60	2	36	0	2	50
			Iodochlorol					
Preinjection	4,260,000	13,250	25	5	65	0	5	0
7 day		21,350	50	3	46	0	1	36
14 day		18,000	60	0	40	0	0	150
21 day		17,500	62	2	33	0	3	108
			Lipiodol					
Preinjection	5,160,000	27,000	80	0	20	0	0	0
7 day		20,000	75	0	25	0	0	18
14 day		18,500	70	2	24	0	4	20
21 day		17,000	72	0	28	0	0	44

magna of a 3-year-old mixed Scottish Terrier male weighing 15 lb. Upon tilting the animal, globular dispersion of lipiodol was seen distinctly throughout the entire length of the cord in myelograms (fig. 3). No immediate reaction was seen clinically or in the postinjection period.

On the eighteenth day, an additional 2 cc. of lipiodol was injected subarachnoidly at the 13T-1L. A distinct myelographic picture was given by the substance (tables 1, 2).

Autopsy sections demonstrated a normal first cervical cord, while the first and fourth lumbar segments showed a mild leptomeningeal reaction.

Diodrast (35 Per Cent).—This material was given (3 cc. in the cisterna magna) to a 2-year-old mixed Collie bitch weighing 25 lb. The injection caused an immediate opisthotonus and muscle quivering. Good shadows were observed in the neck region (fig. 4), but only a faint shadow was seen in the lumbar region upon myelographic examination. The animal died a few hours later in convulsions.

The reaction of diodrast was further checked in another dog to substantiate the original reaction. Three cubic centimeters was administered in the cisterna magna to a 20-lb., 2-year-old male dog. No marked reaction was seen; however, in two hours marked tonic clonic convulsions were seen and in five hours the animal died in convulsions. The histopathological examination revealed no marked lesions in the cervical portion of the spinal cord.

CONCLUSION

The results have been discussed and tabularized (tables 1, 2).

1) Neo-ipax (75%) is generally not satisfactory diagnostically unless administered close to a lesion in the lumbar area.

2) Skiodan (20%) is not satisfactory for myelography.

3) Iodochlorol is not satisfactory unless given close to the lesion because of its extremely slow progression.

4) Lipiodol is satisfactory in a total subarachnoid block but would be unsatisfactory in a partial block because of a globular dispersion during its progression. It should be given close to the lesion.

5) Diodrast (35%) is unsatisfactory not only because of inferior diagnostic radiopacity but because of its toxicity.

From the results of the experiments on this small group of dogs, it is concluded that the former work on pantopaque still indicates it to be the most satisfactory agent for contrast myelography in the dog.

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Virus Reduces Rabbits in Australia

The myxomatosis virus which is being used in ridding Australia of its rabbit pests is in its third year. The virus, which is spread by insects, has caused a 90 per cent reduction of the rabbit population in large sections of the country. Thousands of square miles of light sand country, which had been kept bare by rabbits since they entered South Australia in the 1880's, are now covered with new growths of grass ideal for stock feeding. It is estimated that tens of millions more sheep can be raised in Australia as a result of this destruction of rabbits.—*Vet. Rec., March 7, 1953.*

Hard pad disease can not be produced in dogs which are immunized against distemper.—*H. C. Stephenson, D.V.M., Ithaca, N. Y.*

Varicosis of Anterior Mammary Vein.—Four cases of dilation of the anterior mammary vein with spontaneous rupture and rapid fatal hemorrhage are described. All were heavy milking dairy cows, 6 to 8 years old; they acted normal for the three to seven days that the dilation was noticed before the veins ruptured.—*Cornell Vet., July, 1953.*

Caponization of Native Drakes

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POULTRYMEN caponize chickens, turkeys, and guinea fowl to hasten growth and improve the meat quality of the birds. Likewise, pigs, calves, and lambs are castrated in order to produce superior meat qualities.

Although duck raising is an old venture in the Philippines, it is gaining popularity because of the economic gains obtained from the sale of fresh and salted eggs. However, some better method of disposing of the excess drakes is necessary to effect economy of feed, space, and labor. At present, dressed drakes are being sold in the markets at a price which is presumably much lower than if they were caponized.

Caponization of drakes has apparently not been previously reported in the Philippines.

MATERIALS AND METHODS

Forty-five native drakes ranging from 2 to 5 months old were used in this experiment. Each bird was identified with a numbered legband.

The essential surgical and laboratory equipment used in the operation were: a suitable stand, a sharp scalpel, forceps, a small adjustable spreader, a probe with a hook at one end, a twisting scoop, a snare-type caponizing set, a pair of scissors, a balance scale, a microscope, a plastic ruler, a drape, and cooking utensils.

The drugs and supplies required included sulfanilamide powder, ethyl alcohol, tincture of iodine, cotton, and chloroform.

Two cages, 6½ by 2½ by 1½ ft., and a wire enclosure, 17½ by 12½ by 4 ft., were used in housing the birds.

The surgical anatomy of the operative area and of the organs involved were studied by dissecting 3 chloroform-killed drakes. Two drakes were also killed in order to practice the operation.

The drakes were kept in comfortable, sanitary quarters and carefully observed daily. The physical development of each drake was noted and recorded. Droppings of the birds were occasionally collected and examined for parasites.

The drakes were divided into two main groups with one group serving as controls. Each group consisted of 5, 2-month-old; 5, 3-month-old; 5, 4-month-old; and 5, 5-month-old native drakes, making up 20 birds in each group. During the first week of the experiment, the feed given to the drakes was a mixture of 5 parts rice bran, 4 parts ground corn, and 1 part fish meal on the basis of 30 Gm. of the mixture per drake twice per day. Chopped green grass was given daily. Adequate feeding space was provided. At the end of the first week of confinement, all of the drakes were weighed and the weight of each was recorded. The experimental drakes were then separated from the controls and, prior to the operation, were fasted for twenty-four hours.

The drakes were restrained on their left side on a suitable operating table. The wings were then securely fastened to the table by tying them together with a weighted cord. The weights were so placed that they kept the bird well stretched without blocking the blood circulation. Similarly, the legs were stretched opposite the wings and were fastened to the table.

OPERATIVE TECHNIQUE

The method used was similar to that followed in caponizing cockerels with the following special modifications: The area of operation was disinfected with tincture of iodine after which it was decolorized with ethyl alcohol. The seventh, or second to the last, rib on the right side was next located and the skin over the ribs was drawn toward the hip with the thigh held backward. An incision about ½ to 1 inch long was then made between the sixth and seventh ribs.

A clean drape was placed over the incision and the spreader inserted to hold the ribs apart. The delicate peritoneal membrane was punctured and the snare-type of caponizing instrument, threaded with a fine copper wire loop, inserted into the body cavity. The size of the loop was regulated and carefully slipped under the right testicle until the gonad was entirely enclosed. The loop of fine wire was then gently

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This is a portion of an undergraduate thesis presented by the junior author on April 1, 1953, to the faculty of the College of Veterinary Medicine, University of the Philippines, in partial fulfillment of the requirements for the degree of doctor of veterinary medicine.

This work was conducted in the Department of Veterinary Medicine and Surgery, College of Veterinary Medicine, University of the Philippines, from June 6, 1952, to March 8, 1953, under the direction of the senior author.

The authors gratefully acknowledge the help given by Drs. L. M. Yutuc, head of the Department of Veterinary Medicine and Surgery; T. T. David, former head, and J. A. Solis, present head, Department of Anatomy, College of Veterinary Medicine, University of the Philippines.

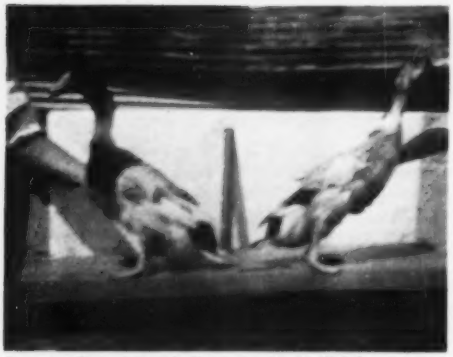


Fig. 1—The 2-month-old caponized (left) and uncaponized (right) native drakes.

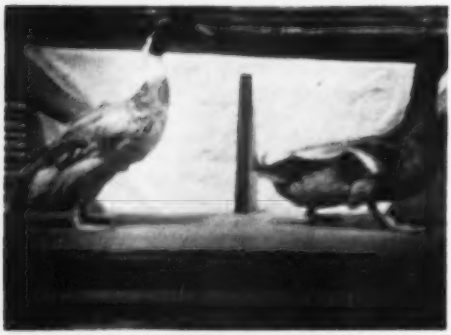


Fig. 2—The 3-month-old caponized (left) and uncaponized (right) native drakes.

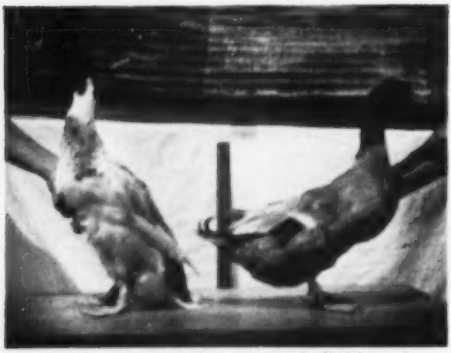


Fig. 3—The 4-month-old caponized (left) and uncaponized (right) native drakes.

closed and the gonad was severed from its attachment. The testicle was brought out of the body cavity by means of a scoop. The bird was then turned over and the left gonad was removed in the same manner. To prevent "slips," both testicles were completely removed including the peritoneal membrane around the gonads, the epididymis and the anterior portion of the vas deferens. Small pieces of absorbent cotton were introduced into the body cavity with small forceps to control hemorrhage. Blood clots, or any foreign matter in the body cavity were removed. Finally, the spreader was disengaged. Sulfanilamide powder was dusted over the wound before the bird was released. The testicles removed from each drake were measured, weighed, and recorded.

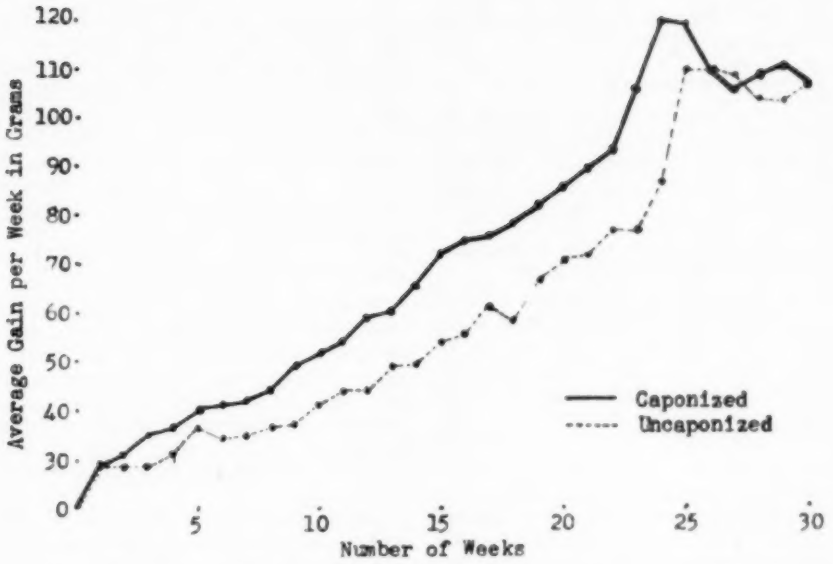
Fig. 4—The 5-month-old caponized (left) and uncaponized (right) native drakes

At the end of the third week, the wounds having completely healed, the caponized drakes were allowed to go with the uncaponized ones. At the end of each week thereafter, the weight of each drake was recorded.

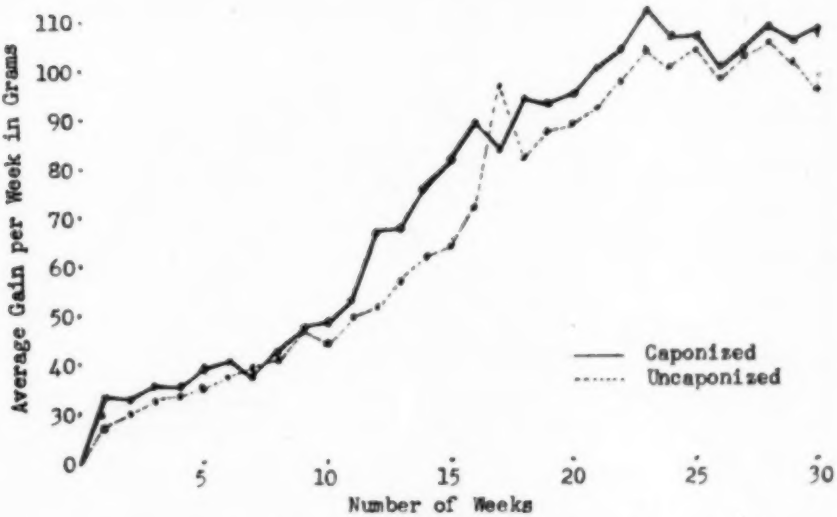
On the sixth week, the ration was changed to 30 Gm. of whole corn per drake given in the morning and in the afternoon. On the tenth week, because the whole corn was not totally consumed, palay was given in the morning and whole corn in the afternoon, in the same amount as formerly. From the sixteenth to the twentieth week, after finishing their afternoon ration they were set loose in the yard and allowed to pick any sort of grass or snails that they could find.

The behavior and development of each bird was observed and recorded daily. Pictures were also taken as a basis of comparison (fig. 1-4).

At the end of the experimental period, the drakes were killed. Their abdominal and visceral fats were weighed and recorded. Cooking experiments were also carried out using 3 caponized and 3 un-



Graph 1—Average weekly gain in weight per bird of the 2-month-old caponized and uncaponized native drakes.



Graph 2—Average weekly gain of the 3-month-old caponized and uncaponized native drakes.

caponized drakes. They were cooked, a pair at a time, by placing the capon in one container and the uncaponized drake in another, using the same ingredients and the same technique for both.

DISCUSSION

The appropriate site of the incision, in relation to the topographical location of the testicles, was between the sixth and seventh ribs. Drakes have an eighth, thin, undeveloped rib which would be easily fractured so it is not advisable to operate between the last two ribs. The testicles are situated at the point where the right and left iliac veins converge to form the posterior vena cava to which they are partly adherent and are related dorsomedially. They lie partly under the anterior lobes of the corresponding kidneys. Anteriorly, they are very close to the lungs, with the membranous diaphragm intervening. Each testicle extends from the level of the fifth to the eighth ribs. The right testicle lies partly against the dorsal part of the right lobe of the liver. The left one is slightly narrower and longer, and is situated more posteriorly. It is related ventrally to the proventriculus and the small intestines. The testicles are pale yellow, bean-shaped, and vary in size with the size and age of the drake. They have approximately the same topographical location as those of the cockerels.

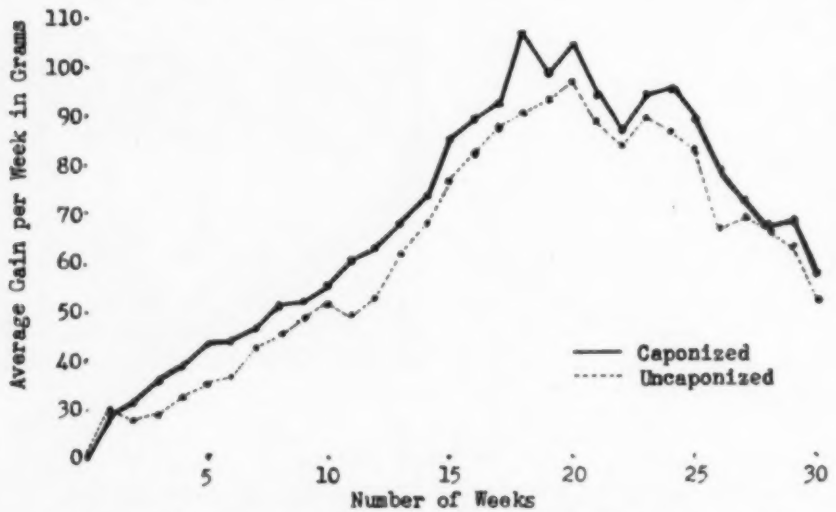
TABLE 1—Average Size and Weight of the Testes of 5 Native Drakes at Different Ages

	Left gonad			Right gonad		
Age when caponized	Length in mm.	Width in mm.	Weight in Gm.	Length in mm.	Width in mm.	Weight in Gm.
2-month-old	12.3	3.6	0.36	11.0	4.4	0.34
3-month-old	14.6	5.2	0.45	13.1	6.2	0.44
4-month-old	22.0	8.6	1.56	17.2	9.4	1.45
5-month-old	25.8	11.6	2.52	23.8	12.0	2.42

PROPER AGE TO CAPONIZE

When drakes are 2 months old, their testicles are small so that a correspondingly small incision is made, and the healing is rapid. Furthermore, the spermatic arteries and veins at this time are small and the danger of fatal hemorrhage is greatly minimized. Also, more gain in weight should be obtained by caponizing the drake at this age.

Caponization of 5, 5-month-old native drakes took longer—an average of six minutes per drake. Difficulties were encountered in looping the testicles on account of their bigger size and close relation with the vena cava where they are partly adherent. The same difficulties occurred with 4-month-old native drakes. The operation



Graph 3—Average weekly gain of the 4-month-old caponized and uncaponized native drakes.

required five and four minutes for the 3- and 2-month-old native drakes, respectively.

Table 1 shows the average size and weight of the testicles.

The healing process varied with the size and age of the birds. With practically the same postoperative care and treatment, it took about six to ten days, for the wounds to heal completely in the 2- and 3-month-old drakes; eight to thirteen days in the 4- and 5-month-old group.

Complications.—A few days after the operation, some of the drakes developed wind puffs. This condition was corrected by cutting a V-shaped incision in the skin with scissors, allowing the wind puffs to collapse. They usually persisted for five to ten days before complete healing was effected.

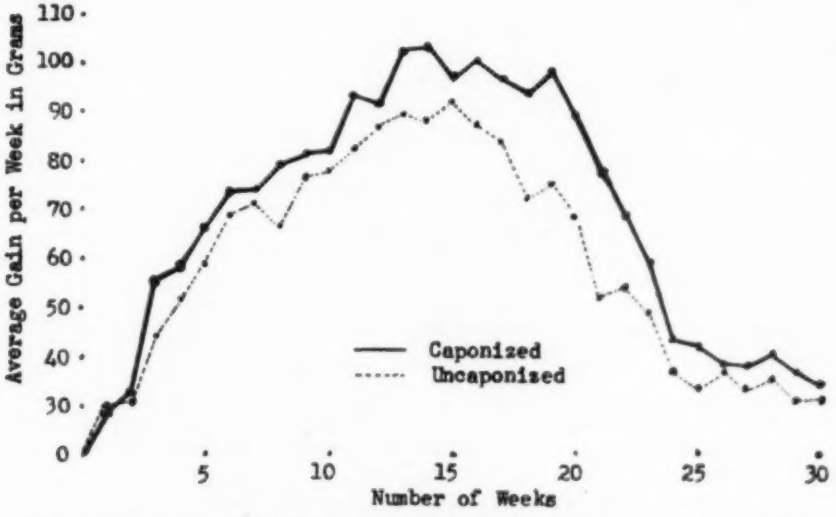
One "slip" was discovered when the caponized birds were butchered. A small portion of the left testicle had been accidentally left in a 5-month-old drake and had regenerated.

Gain in Weight.—The rate of growth, based on the average weekly weight of the caponized and control groups, are graphically shown in graphs 1 to 4. The caponized groups showed higher average gains than the controls. However, not all of the caponized individuals gained more than the controls during the first few weeks.

Among the 2-month-old drakes, the difference in the average gain of the caponized and control groups was insignificant during the first five weeks but from the fifth to the twenty-fourth week a marked difference was noted. The maximum average weekly gain in weight among the caponized group was 119 Gm. per bird the twenty-fourth week, after which the rate of gain declined. At the thirtieth week, the caponized drakes had an average greater gain of 325 Gm. per bird.

The 3-month-old caponized and control groups showed little difference in rate of gain until the eleventh week. The maximum average weekly gain among the caponized group was 112 Gm. the twenty-third week. In the control group, the maximum was 105 Gm. the twenty-eighth week. By the thirtieth week, the caponized drakes had gained an average of 188 Gm. more than the controls.

The 4-month-old group showed only a slight difference in average gain until after the tenth week. The maximum average gain of 106 Gm. for the caponized group was in the eighteenth week. The maximum average gain of 96 Gm. for the control group came in the twentieth week (graph 3). The caponized drakes gained 173 Gm. more than the controls by the thirtieth week.



Graph 4—Average weekly gain of the 5-month-old caponized and uncaponized native drakes.

The 5-month-old capons showed little advantage in gain during the first seven weeks. Their maximum average gain of 103 Gm. came on the fourteenth week as compared to the control group with 92 Gm. on the fifteenth week (graph 4). By the thirtieth week, the capons had gained an average of 278 Gm. more than the control birds.

TABLE 2—Average Weight, in Grams, of the Recovered Abdominal and Visceral Fats of Caponized and Uncaponized Native Drakes

Age at operation	Caponized (Gm.)	Uncaponized (Gm.)
2-month-old	58.08	14.04
3-month-old	45.38	13.08
4-month-old	34.52	12.08
5-month-old	32.41	9.52

The capons were much more sluggish, docile, and easier to keep within bounds than the uncaponized drakes. The feathering, especially the fluff and the rear body feathers, was more profuse in the capons than in the controls. Furthermore, the capons developed more uniformly and grew to a slightly greater size (fig. 1-4).

Whereas capons were thoroughly cooked in an average of two hours and twenty minutes, the control birds required three hours and fifteen minutes. The usual "drake odor" was greatly reduced in the meat of the capons and it was more tender, juicy, and palatable. More fat was found between the muscle fibers of the capons.

The notable increase in the abdominal and visceral fats among the capons as compared to the controls became less marked as the age at operation increased (table 2).

SUMMARY AND CONCLUSIONS

1) Drakes caponized when 2 months old required less time for operating and healing and made greater gains in weight than did drakes caponized when older.

2) The gain in weight began to diminish after the twenty-fourth week; therefore, it would seem advisable to sell the capons at this period.

3) The proper site of the incision is between the sixth and seventh ribs.

4) The capons showed a greater average gain in weight than the controls.

5) They developed more visceral and abdominal fat than the controls, but were also relatively heavier and bigger.

6) They developed more profuse feathering and were more docile than the controls.

7) The meat of the caponized drake was much more tender and soft and required less time for cooking than the control.

8) The "drake odor" of the meat was greatly reduced by caponization.

9) A few cases of wind puffs were the only postoperative complications.

Aneurysms of the Internal Iliac Artery in a Holstein-Friesian Bull

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St. Paul, Minnesota, and Dallastown, Pennsylvania

Reports of the occurrence of aneurysms in animals are few. A fairly complete search of domestic and foreign veterinary literature of the past eighteen years contained only 15 papers that dealt with this disorder in animals. Ten of the papers describe aneurysms in horses, three in cattle, and two in swine. Seven of the reports of aneurysms in horses describe their occurrence in connection with the formation of a thrombus in the anterior mesenteric artery which develops in response to irritation by larval forms of *Strongylus vulgaris*. Aneurysms due to this parasite are a matter of common knowledge to veterinary parasitologists and pathologists.

On Aug. 18, 1952, a Holstein-Friesian bull (clinic case 502996) was admitted to the veterinary hospital for the purpose of determining its physical and reproductive fitness for stud service in an artificial breeding program. The bull was approximately 3½ years of age and its weight was estimated at 1,800 lb. It possessed a "quiet" temperament and, according to its owner, had never been sick.

Except for a slight supporting type of lameness that involved both hind legs, the general physical condition of the bull was considered good. The hoofs of the hind feet were overgrown and had not been properly trimmed for weight bearing and ambulation. This contributed to lameness.

Paper No. 2977, scientific journal series, Minnesota Agricultural Experiment Station, St. Paul.

From the School of Veterinary Medicine, University of Minnesota. Dr. Moist is now in general practice in Dallastown, Pa.

Throughout its fifteen-day stay in the hospital, the daily rectal temperature, pulse, and respiratory rate were within normal limits. On the basis of appropriate tests, the bull was free from brucellosis, Johne's disease, tuberculosis, vibriosis, and trichomoniasis. Examination of the respiratory, digestive, urinary, and genital organs failed to disclose any abnormality that might disqualify him.

When the intrapelvic generative organs were being examined by one of us (K.M.) the vascular defects described here were discovered. Three semifirm bulbous masses were present on the left upper surface of the pelvic cavity near the pelvic inlet. They appeared to follow the course of the internal iliac artery. The largest of the vascular dilatations was estimated at 6 to 7 cm. in diameter, a second at 3 to 4 cm., and a third about 2 cm. in diameter. An outstanding physiological characteristic of the lesion was a marked vibration sensation that one got when palpating the region *per rectum*. In fact, the vibration was much more prominent than the pulsation in this part of the vessel. The tension and stretch on the vessel walls in these aneurysmal portions of the artery seemed to be so great that any slight additional pressure on them might result in a ruptured blood vessel.

The presence and nature of the aneurysm was the basis for disqualifying the bull for stud service and also the basis for recommending that it be consigned for slaughter. This was agreed to by the owner and the bull was slaughtered at a nearby meat-packing establishment where arrangements could be made to collect whatever parts were necessary for further observation and study.

Less than ten minutes after the animal was pronounced dead, the abdomen and thorax were opened and the viscera removed. Care was taken not to disturb the aorta in the lumbar and sacral regions or any of its chief branches at these levels. Thus, ample opportunity was afforded to make a direct examination of the region where the aneurysms were found in the living animal. However, since the blood had all escaped from the larger vessels and the vessels had undergone agonal contraction, some rather close dissection was necessary in order to find the vascular defects. At two places along the course of the internal iliac artery, its circumference was slightly increased and the vessel wall in these places was thinner than the wall in other parts of the artery. The dilated and thin-walled sections involved only a part of the circumference of the artery. One of these sections measured 5.0 cm. in length and a second measured 2.5 cm. in length. The largest of the aneurysms was between the anterior gluteal and ileolumbar arteries and the small one between the ileolumbar and umbilical arteries.[1] It will be noted that only two aneurysmal sections could be demonstrated in the vessels after death whereas, in our opinion, three such areas existed in the living state. It is probable that a secondary dilatation of a primary aneurysm occurred and this was construed as a separate lesion.

The microscopic morphology of the aneurysms showed that no muscle elements of the tunica media were present in a part of the vessel wall. About one fourth of the circumference for about 2 cm. lengthwise of the vessel, was void of the circular muscle coat, and the longitudinal muscle coat of the tunica adventitia was fragmented and thinned. The space normally occupied by the smooth muscle was replaced by loose connective tissue. It was this arrangement of the tissues which permitted the distention of the vessel wall to form the aneurysms. A dissection of the artery and its principal branches distal to the lesions failed to disclose anything which could be considered a thrombus; nor did the vessel walls show any noticeable defects which might have dammed the blood flow thereby increasing the volume proximally, causing the diseased vessel to dilate.

The scarcity of reports on the occurrence of aneurysms in the lower animals, plus the fact that in this case certain detailed antemortem and postmortem data pertinent to its occurrence could be obtained, prompted us to publish this record.

[1]Sisson and Grossman: The Anatomy of Domestic Animals. 3rd ed. W. B. Saunders Co., Philadelphia, 1940.

Erysipelas in Two Bovine Hearts.—Two cases of erysipelas endocarditis, in slaughtered cattle, affecting the entire endocardium of the right ventricle are described. This is quite different from the condition in swine where the lesions are restricted to the heart valves.—*Vet. Bull., April, 1953.*

Isolation of Leptospira from Cattle in Washington — A Preliminary Report

R. W. GILLESPIE, Ph.D.; LEIF M. RINGEN, Ph.D.; S. G. KENZY, D.V.M., Ph.D.

Pullman, Washington

Bovine leptospirosis, reported from at least 20 different states in this country, seems to be present in areas where it was not suspected. During the last two years, some cattlemen in the State of Washington reported a sudden increase in the abortion rate in their cattle, which could not be explained on the basis of brucellosis or vibriosis. Serological examinations of these cattle made by different institutions suggested the possibility of leptospirosis. In order to establish the presence of Leptospira in these animals, attempts were made to isolate the organism from the urine of infected cows.

The isolation of Leptospira under field conditions is most easily done by the immediate inoculation of a suitable laboratory animal. Young guinea pigs were used during this investigation. These animals showed a negative serological reaction against *Leptospira pomona* at the time of inoculation. The serological test employed was the agglutination-lysis test.

The primary isolation was accomplished by immediately centrifuging the urine specimen at 4,000 to 5,000 r.p.m. for one half hour and inoculating 2 to 3 ml. of the sediment intraperitonealy into young guinea pigs.

Rectal temperatures were taken daily. When the temperature of the guinea pig reached 104 F. or higher, blood was collected by cardiac puncture. One half of this blood was immediately inoculated into a second guinea pig and the remainder used for cultural and serological studies. The isolations were made using two different mediums. Gardner's medium was modified by buffering with phosphates at pH 7.2, and Fletcher's medium (pH 7.4) included a 6 per cent by volume of trypticase-soy broth (B.B.L.).†

After variable periods ranging from two to four weeks, the guinea pigs were killed and blood, liver, spleen, lungs, and kidneys obtained for further study.

From the Department of Veterinary Microbiology, State College of Washington, Pullman.

†Baltimore Biological Laboratory.

The results of these experiments led to the demonstration of the presence of Leptospira by two different methods: (1) serological studies of the guinea pigs showed a rising titer against *L. pomona*, and (2) the organism was isolated from the blood and tissues of the infected guinea pigs. Identification of the genus was based upon morphological characteristics, but as yet this organism has not been identified as to species.

Dr. H. G. Stoenner* of the Rocky Mountain Laboratory, Hamilton, Mont., also isolated a species of Leptospira from one of the herds of cattle examined by this laboratory.

*Personal communication.

Equine Choke.—The most common cause of choke in the horse is the hurried eating of dry grain, usually oats. The usual location is the posterior third of the cervical region. The classical procedure for loosening the grain is to pass the stomach tube to the mass, then fix the patient's head at a low level and slowly pump warm water in to wash out the particles.—*I. E. Hayes, D.V.M., in Iowa State Coll. Vet., June, 1953.*

Basenji Dogs Are Not Mute

Basenjis do not bark but some of them, when startled, may yap sharply, similar to a bark. This usually indicates a nervous temperament, so such dogs should not be bred. However, Basenjis whine to attract attention and make a throaty noise called "yodelling" when happy. They also cry out when hurt, growl when they are aroused, and snarl when angry, just as any other dog would.—*Dog World, Feb., 1953.*

Therapeutic Value of a Pet

Nothing surpasses a pet of some sort for building up the morale of our armed forces, no matter where they may be. Most of the mascots are dogs, but cats, rabbits, guinea pigs, ducks, and pigeons are also found. A friendly dog is "tops" at keeping men in good spirits.—*Our Dumb Animals, July, 1953.*

Undulant Fever.—In 1951, Iowa, Minnesota, and Wisconsin reported 50 per cent of all cases of brucellosis for the United States.—*Successful Farming, April, 1952.*

The Small Animal Practitioner in Civil Defense

F. A. TODD, D.V.M.

Arlington, Virginia

CIVIL DEFENSE is based on the principle of self-protection by the individual, extended to include mutual self-protection on the part of groups and communities. It is the organization of activities by civilians acting under civil authority to protect the home front by minimizing casualties and war damages and preserving maximum civilian support of the war effort. The success of a civil defense program is dependent upon the active interest and participation of all civilians. During a disaster, and especially one involving an attack upon urban or industrial areas, every person who is not incapacitated will have a duty to perform. Some will serve in the usual capacity of their experience and training while others will have to assume new and unfamiliar duties.

CASUALTY SERVICE

The civil defense needs for emergency medical care for people during or following the bombing of a city will be much greater than can be provided by all available physicians, dentists, interns, nurses, etc., together with usual medical facilities. Every medically-trained individual of the community will be needed. Veterinarians in urban areas have a civil defense responsibility to assist the medical profession in the care and treatment of human casualties.

Small animal practitioners and their modern, well-equipped hospitals, many of which are located in the peripheral zones of cities, can be valuable adjuncts to the human medical services of the area. Veterinarians in and around potential target areas should offer their services and their establishments to their local civil defense organizations for this purpose. They should inform the local Health and Special Weapons Defense Office of Civil Defense of the x-ray and surgical equipment available in their hospitals for such emergencies, and include the normal inventory of such items as surgical dressings, drugs, and sutures.

In civil defense planning, it is agreed that during an emergency veterinarians in urban areas, because of their training and experience, should work with physicians in the care of physical injuries. In the Federal Civil Defense Administration publication, "Organization and Operation of Civil Defense Casualty Services" (Part 1—The First Aid System, TM-11-1), it is suggested that dentists and veterinarians will function as auxiliary surgeons. In the F.C.D.A. publication, "Training First-Aid System Personnel," suggested training courses are outlined for dentists and veterinarians. They will be expected to treat shock and injuries, to perform venipuncture and administer blood and blood expanders, and to assist in the care of radiation injuries.

In an atomic disaster, when the first-aid stations are set up, the veterinarian will be authorized to work there, under direction of the physician in charge.

To carry on this service, veterinarians will need considerable well-directed training to aid them in the preparation for such emergency medical services. The American Red Cross first-aid training course should be considered an excellent means of providing a sound and helpful orientation in life-saving and casualty care. In a major disaster, or even in a peacetime crisis, the veterinarian may be called upon to give assistance as a qualified first-aid worker.

The American Red Cross is alerting its chapters, especially those located in and around urban and industrial areas (target cities), to anticipate a demand from veterinary groups and associations for first-aid training to be given on the highest professional level obtainable. The basic course in first-aid should be followed by advanced work taught by a physician and in accordance with information contained in part 1 of "The First Aid System, TM-11-1."

This Red Cross training program has been discussed and approved by the American Veterinary Medical Association.

Local veterinary societies should organize their own first-aid classes and then approach the local Red Cross chapter to work out a time schedule and the assignments of a Red Cross first-aid instructor.

In an emergency, after the first influx of human casualties has been temporarily cared for, there will be services of a strictly veterinary nature to perform. These will include caring for injured pets and possibly liberated zoo animals, handling

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This paper was prepared by Dr. Todd at the request of the Emergency Advisory Committee of the AVMA. This group reviewed and approved it.

of deserted pets and strays, and supplementing the forces for the inspection of food and food storage facilities which may be damaged or contaminated.

ATOMIC WARFARE

Concern has been expressed regarding the likelihood of food and water becoming contaminated by the deposition of fission products and unfissioned bomb material, or as a result of neutron activity.

In case of a high airburst in good weather, there will be no significant contamination of foodstuffs. Following a contaminating burst (e.g. low level, or underwater burst, or during rainy or cloudy weather), packaged foodstuffs will not contain a significant amount of radioactivity. However, since the packing material may become slightly or moderately radioactive, large stores should be monitored before extensive handling of packages is permitted. Again, it is stressed that radiation from this source will not damage the foodstuff. Bulk foods may become so contaminated that they should not be used during the emergency period. The eventual decision as to usability will be a matter for other authorities to make. (It is probable that in most instances radioactive decay will permit the use of nonperishable foods within a reasonable time.)

Water in closed containers, including pipes and other plumbing fixtures, will not become dangerously radioactive and may be used. If there is a question as to whether the water or food is radioactively contaminated, monitoring should be requested.

In atomic warfare, those animals in areas receiving large amounts of initial radiation, like their owners may also be exposed to serious physical damage. The degree of radiation sickness would depend upon the amount of shielding materials between them and the bomb burst. There is no specific therapy for radiation sickness; in general, domestic animals are about as radiosensitive as man. In cases of probable serious radiation injury, the animals should be placed under observation and treated symptomatically if signs of radiation sickness appear. Those animals surviving the first few weeks may be expected to recover.

RADIATION SICKNESS IN THE DOG

Dogs exposed to lethal doses of whole body irradiation may vomit on the day of exposure, particularly after doses approaching the lethal level. During the remainder of the first week, such dogs may appear well although they may be somewhat listless and their food intake slightly reduced. The peripheral blood shows a reduction of the white blood count, depending on the dose level.

During the second and third weeks after exposure, there is frequently a bleeding tendency, particularly hemorrhages of the gingiva or bloody diarrhea. Anemia is seldom severe and death from hemorrhage alone is exceptional. The depression of the white blood cell level permits the development of infections usually toward the end of the second week, but occasionally as early as seven days or as late as twenty-two days after exposure. Gangrenous tonsillitis is common and, rarely, there is anal and perianal infection and edema, pneumonia, or sloughing ulcers of the skin or oral mucosa. The onset of these infections is heralded by a rapid rise in body temperature, and death generally supervenes within two to four days.

Dogs that do not develop signs of infection up to the twenty-fifth day postirradiation almost invariably survive and their blood count returns to normal. Late sequelae probably include cataracts and a shortened life span, but precise data on late changes in irradiated dogs are not available.

After supralethal doses, dogs develop anorexia, vomiting, and diarrhea within hours of exposure. These symptoms continue, the dogs become markedly dehydrated, and generally die on the third or fourth day postirradiation.

RADIOLOGICAL WARFARE

Radiological warfare utilizes ionizing radiation as the sole weapon, in contradistinction to atomic warfare which utilizes the explosive release of nuclear energy.

The principal objective of radiological warfare would seem to be to deny the use of areas or objects to the enemy. Therefore, if a city were attacked by radiological weapons and as a result was considered uninhabitable for a period, small animals would be evacuated along with the people so should present no problem.

CHEMICAL WARFARE

The use of chemical warfare is broad.

It is directed at groups rather than the single individual. Chemical warfare agents could be used to produce casualties, render areas impassable, and to start fires. The contamination of food and water with chemical warfare agents could be incidental.

Unprotected food, forage, and grain supplies might be so contaminated that their consumption would produce gastrointestinal irritation or systemic poisoning. The nerve gasses, vesicants, and arsenicals are the most dangerous.

Packaged food supplies in storage are not likely to be seriously contaminated. Canned foods are safe, but the outer surfaces of the containers should be decontaminated before opening. Large supplies of food should not be condemned *en masse* simply because they have been exposed to the possibility of chemical contamination. They should be handled only by those trained in decontamination methods and equipped with proper protective clothing and gas masks.

The handling of animal casualties of chemical warfare is similar to that for human casualties. The feet and legs of dogs are particularly vulnerable to liquid blister gases. Animals should be prevented from drinking from water holes or pools of water. Water from deep wells or large streams and lakes is usually safe.

Personnel handling animals contaminated with liquid nerve gas or vesicant agents must be protected by gas masks and impermeable protective aprons and gloves.

The symptoms in animals due to nerve gases are: difficult respiration, constricted pupils, and copious serous nasal discharges. Speed is essential in treatment. An intramuscular injection of 2 mg. of atropine sulfate may reduce casualties by as much as 50 per cent. A delay of five minutes in its administration, after the inhalation of nerve gas vapor, will greatly reduce its effectiveness. It may be repeated if the animal goes into convulsions or respiration becomes difficult.

Liquid nerve gas on the animal's coat may penetrate to the skin both as vapor and liquid, and be absorbed fairly rapidly. It is essential to decontaminate the animal in the first few minutes. The most effective method is to rinse the coat with a 5 per cent solution of sodium carbonate, followed by plain water, then give the injection of 2 mg. of atropine sulfate. If miosis is marked, atropine sulfate ophthalmic ointment should be instilled into the eyes until mydriasis is induced and maintained.

Blister or vesicant agents cause an inflamed or an ulcerated area on the contaminated skin of animals, but not vesications.

Because the coat impedes penetration, effective prophylactic measures may be instituted later in animals than in man. Decontamination may be accomplished by vigorous scrubbing of the contaminated area with a 5 per cent solution of potassium permanganate. Swabbing with soap and water, or washing with solvents like gasoline or kerosene, is not advised since they usually spread the agent, causing a large but shallow lesion.

It must always be remembered that the contaminated coat of a small animal or pet can transmit the chemical agent to any human being who comes in contact with it.

BIOLOGICAL WARFARE

Biological warfare (BW) is the intentional introduction and spread of disease-producing agents or toxic products to cause death, disability, or damage in man, animals, or crops. The primary target is man, either directly through disease or indirectly through the limitation of his food supplies. Biological warfare against livestock will not be included in this paper.

In order to meet a BW attack effectively, it would be necessary to know when and where such an operation was carried out and to identify quickly the biological agent employed. Routine analyses of water, milk, and other foods represent the kind of measures needed. The deficiencies of present procedures are that most methods of identifying the possible agents require too much time. One of the most pressing needs is more accurate and rapid means for determining the presence of foreign material in air, water, or foodstuffs. This may require entirely new approaches, apparatus, and equipment. Investigations are being conducted on this problem at the present time.

Until more satisfactory methods for sampling the environment are developed, the occurrence of an unusual disease or of an epidemic, in all probability, will be the first indication that a BW attack has occurred.

The usual enteric diseases are acquired through the ingestion of contaminated food.

water, and milk. Such problems can be solved by emphasizing the need for water treatment, pasteurization, washing, and cooking.

Packaged, canned, and bottled foods, as well as those protected by storage and refrigeration, would not likely become contaminated. It should be emphasized, however, that if any question exists on the presence of a disease agent contaminating food items, those items should be thoroughly washed and cooked before being used.

The prevention of infections and poisoning from meat and meat food products depends upon the health of the animal, the mode of death, and upon the methods of handling and storage. Thorough cooking is the ultimate safeguard. One should remember that neither putrefaction nor decay necessarily indicates the presence in a food of toxins, enterotoxic substances, or pathogenic bacteria.

Consideration should be given to those pathogens which will parasitize both man and animals, since they have two possible targets and secondary human cases might follow an epizoötic. Most of the agents of biological warfare usually discussed in literature as potential diseases against man are those common to animals and man.

Biological warfare, however, does not constitute a significant problem with small animals and pets. They might become contaminated with an agent but it would require an almost immediate and direct contact between the animal and man in order to transmit the agent.

The success of certain chemotherapeutic materials in the prevention and control of some infectious diseases offers a method for the minimizing of casualties following a BW attack. Antibiotics have been suggested for a similar role because of their greater effect on many potential BW agents.

Protective immunizations of small animals against rabies, distemper, and other communicable disease, for which there is a recognized and proved biological agent, is suggested. Rabies control programs should be developed, strengthened, and maintained at all times.

PLAN FOR ANIMAL CARE

Plans for the care and handling of small animals, pets, and large animals found in the city stockyards and sales barns, and the wild animals and reptiles in the zoos, during and following an emergency, should be developed and established by the state and local groups working under the auspices of the respective civil defense organizations. These planning groups should be formed under the leadership of veterinarians, but should include representatives of the American Humane Association, Animal Rescue League, American Animal Relief Services, and the Society for Prevention of Cruelty to Animals.

It is suggested that since the veterinarian may be required to care for human casualties during the initial stages of an emergency, programs for the care and handling of animals during this period should be so organized that they can be conducted by the American Rescue League or similar organizations.

All animal protective organizations have offered their coöperation and the use of their facilities to local civil defense directors. A close working arrangement among all local groups is imperative in the interest of both people and animals. In those communities in which there are several animal protective groups, a coördinated plan for joint action should be developed. Such a plan will avoid duplication of effort.

Experience in England during World War II revealed that far fewer animal casualties occurred in raids than expected. One of the big problems seemed to be in caring for stray animals following the bombing. Because of the risk of starting epizoötics, they could not be merely rounded up and housed in temporary centers; therefore, a number of detention posts were used.[1]

In the early raids on London, large numbers of dogs and cats were rendered homeless. In a few days, dogs became dangerous to human beings when starving packs took possession of evacuated homes. Cats were intentionally left behind in some areas to keep down rats and mice; however, most animals were rounded up after each raid and sent to a detention post until they were claimed or destroyed.

Animals, like human beings, were found to suffer considerably from blasts. Many died from shock. In many homes that were bombed, the pet had gone to the basement because of the noise and was trapped there

[1]Hardy, Eric: Effects Upon Domestic Animals of Air Raids in England. Liverpool, Eng., 1942.

and not discovered until several days later. Symptoms of trembling and shivering, similar to those of man suffering from shock, were observed and were treated with warmth and stimulants. Stray cats often became a problem in bombed buildings because they hid in corners extremely difficult to reach; equipment was devised for use in these conditions.

An important item in the planning stage is care of small animals during air raids. In England, it was found that domestic animals should not be allowed in public air raid shelters.

Every dog and cat should have a collar, identification tag, and chain to restrain the animal during the period of and following an attack. A supply of nonperishable dog or cat food should be included on the family emergency shelf for use during the post-attack period.

The following suggestions for handling animals during war emergencies are contained in the publication, "Handling Animals During a War Emergency" by the American Humane Association:

CARE FOR HOME PETS

1) Dog license tags and name plates bearing address should be worn by the dog at all times.

2) Cats should wear collars bearing name and address of owner.

3) During air raid warnings:

a) Keep house dogs confined to one room and securely leashed to a heavy piece of furniture.

b) Keep yard dogs secured by leash in a dog house or similar protective cover.

c) Never turn animals loose out-of-doors.

d) Provide suitable boxes or carriers for cats and small dogs.

4) Exercise dogs on a leash near home. Do not permit animals to roam.

5) Dogs are easily suffocated by smoke and may dash back into their burning home unless restrained by a leash.

6) Keep a supply of food and drinking water in covered containers for use following an air attack.

7) Animals will not be permitted in public air raid shelters.

8) A box of ashes, sawdust, or torn newspapers, kept in the house and changed daily, will help meet sanitary needs of animals that must be closely confined.

9) In mild cases of fear and hysteria use sodium bromide.

Small dogs, 2 gr.	If not
Medium-sized dogs, 5 gr.	calm within
Large breeds, 10 to 15 gr.	an hour or
Cats, 1 to 2 gr.	two, repeat.

Aspirin also will do: 2½ gr. for a small dog; 10 gr. for a large dog; 2 gr. for a cat. Consult your veterinarian for more effective sedatives.

10) An injured animal, frenzied by pain, should be wrapped in a blanket or coat or cautiously handled with gloves so that it can not bite. Keep your face away from an injured animal's head. Do not manipulate or wiggle broken legs.

11) Burns must be treated promptly. In minor cases apply strong cold tea. Spread plain petroleum jelly, cod liver oil, cooking oils, butter, cream, or even milk over the burned area to keep out air. See a veterinarian at once if the burn is serious.

12) Serious bleeding may be stopped by pressure. Do not leave a tourniquet on more than twenty minutes at a time; remove tourniquet for a few seconds and then re-apply.

13) Take all unwanted or stray animals to an animal welfare organization. This is particularly important after a raid. Know the name and location of your local humane society, SPCA, or other animal protective organization.

14) Take your injured or sick animal to a veterinarian. Know the name and address of a nearby veterinarian.

15) Some apartment buildings and hotels may be asked to set aside a room in which some animals may be tied firmly so they can not reach each other.

16) Remember that names and addresses of dog owners may be quickly obtained from the licensing agency in your community.

17) Small birds may be quickly transferred from their normal cages and taken to a place of safety in small boxes, which should be perforated for air. Boxes or baskets should be used in proportion to size for larger birds.

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Screw Fly Ravages in Foxes and Mink

Wohlfahrtia (screw fly) maggots are responsible for the death of many young foxes and mink in the northern United States and Canada. This parasite should not be confused with the screw worm. The eggs hatch within the fly which deposits them as tiny white maggots on the young victims. They bore through the unbroken skin, usually the face, neck, axillary and flank regions, or around the anus and between the pads of the feet.

The larvae destroy the flesh and produce toxic secretions. After seven to nine days they are two-thirds to three-fourths of an inch in length and leave the host which is, by then, usually dead or dying. How the flies survive the winter is not known but they reappear late each spring. On some ranches, they have caused losses of 30 per cent of the baby animals.—*National Fur News, June, 1953.*

The Effect of Phenothiazine N.F. (Green) and Phenothiazine N.F. Purified on the Uptake of I^{131} by the Thyroid of the Burro

A Preliminary Report

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In a recent report,[1] Talmadge *et al.* showed that the uptake of radioiodine (I^{131})* by the rat thyroid was almost completely inhibited when phenothiazine N. F. (green) was administered to rats in amounts equivalent to that normally employed for prophylactic feeding in sheep (on the basis of grams of drug administered per kilogram of body weight).

In view of the fact that this drug is widely used as both a prophylactic and therapeutic agent in the control of nematode endoparasites in domestic animals, it was believed that an investigation should be made with animals commonly treated with phenothiazine. Because of the possible practical implications of the above report,[1] this preliminary report dealing primarily with the effect of the commonly used green phenothiazines and the purified yellow form on the I^{131} uptake by the burro thyroid is submitted. A survey of this effect of the drug in farm animals will follow.

The results of tests on 10 experimental burros are included in this report. Phenothiazine N. F. (purified) and three different preparations of phenothiazine N.F. (green) were used for treatment. The drug was administered by capsule in amounts up to 5 Gm. for the green phenothiazine and up to 10 Gm. for the purified yellow form. The I^{131} was normally administered twenty-four hours after the phenothiazine. In all cases

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Oak Ridge Institute of Nuclear Studies (Talmage, research participant from Rice Institute, Houston, Texas); Veterinary Corps, U.S.A. (Trum and Rust); and University of Tennessee, Atomic Energy Commission (Monroe).

*I^{131}, a radioactive isotope of stable iodine, is commonly used as a tracer for studying thyroid physiology, since its utilization by the thyroid can easily be determined by measurement of the radioactivity in the gland. The uptake of radioiodine is used as an indication of thyroid function.

for the purified yellow form, the uptake† of I^{131} by the thyroid was essentially normal. The three green forms used varied considerably in their ability to suppress I^{131} uptake. One preparation caused over a 90 per cent reduction in the iodide taken up by the thyroid, a second caused between 60 and 70 per cent reduction, while the third had no effect on the uptake. The indications are, therefore, that the antithyroid effect is confined to the impurities and, depending upon the methods of preparation, may, in the green forms, be absent completely or present in sufficient quantity to cause almost complete inhibition of I^{131} uptake by the thyroid. That the response to the agent was due to the impurities in the green form has been previously noted for the rat by Kraintz *et al.*[2] and by Talmage *et al.*[3]

Some phenothiazine N. F. (green) preparations contain approximately 0.3 per cent organically bound iodide. This, if readily available, is sufficient in itself to act as a thyroid depressant.[4] Investigations are in progress to determine whether the thyroid suppression is due to excess iodide or to an unknown antithyroid agent. However, whether due to one or the other of these causes, it appears that some preparations of phenothiazine N. F. (green) are capable of suppressing thyroid function.

From these preliminary studies it would seem that phenothiazine N. F. (green) has certain attributes which make it less attractive as an anthelmintic than phenothiazine N. F. (purified). It is possible that the weight gain widely noted after continual use of phenothiazine N. F. (green) in stock animals may be due primarily to the state of hypothyroidism produced, rather than solely to removal of the helminths. Where breeding, physical exertion, or productive processes are considerations, there may be a major disadvantage resulting from the hypothyroid state produced by the nonpurified drug.

†Uptake measurements were made by external counting over the thyroid with a scintillation counter (NaI crystal) coupled to a rate meter.

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The Status of Garbage-Cooking Bill

As of July 30, 34 states had passed legislation requiring the cooking of garbage which is to be fed to animals. A similar bill awaited the governor's signature in Arkansas. Six states consider their present regulations sufficient. A bill to require cooking of garbage was defeated in six other states and no action has been taken in Vermont.

Porcupine Menace in Idaho.—The University of Idaho warns that porcupines may girdle as many as 100 trees in the winter. Foresters report that more trees are killed each year by porcupines than by forest fires.

Fluorine Poisoning in a Jersey Herd

The *Jersey Bulletin* (July 10, 1953) reports that the owner of a farm and an outstanding Jersey herd has sued the Aluminum Company of America for $150,000 damages. It claims that as a result of poisonous gasses, fumes, and dust from the nearby plant since 1948, crops have been ruined and milk yields reduced 50 per cent. Some animals have died and many have been unthrifty and marketed at a sacrifice. The animals are said to develop stiffness of joints, "knots" on their ribs, loss of appetite, and finally death. Cows often fail to come in heat and calves are sometimes born dead or very weak.

The Dairyman's Dilemma.—The dairyman's strenuous campaign for legislation for the control of oleomargarine seems to have had three results, none of which are to their benefit. By being defeated they have proved to the world the people want the privilege of buying "oleo" if they so desire. They have given their competitors some very valuable advertising and they have antagonized many customers.—*Guernsey Breeders' J. (Aug., 1953) reprinted from Ayrshire Digest.*

Phenolized Rabies Vaccine in Cats

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The plan for the control of rabies in a given area usually includes a program of vaccination, especially of dogs. In such areas, the advisability of vaccinating cats is questioned. Most of the vaccine available for use in animals in this country is a 20 per cent suspension of brain tissue obtained either from horses, goats, or sheep previously infected with a fixed rabies virus. This vaccine also contains 0.5 per cent of phenol. Questions regarding the safety of phenolized vaccine frequently are asked.

Ferreira[1] has reported studies conducted in Portugal in which 5 cats received 5 ml. of formalized vaccine, 5 received 8 ml. of phenolized vaccine, and 5 received 10 ml. of phenolized rabies vaccine. The vaccine used had a concentration of 20 per cent tissue and 1 per cent antiseptic in the suspension. Each dose of vaccine was administered subcutaneously. He concluded that the cats tolerated, without inconvenience, these doses of two types of vaccine.

Because of the frequency of inquiries regarding the use of phenolized rabies vaccine in cats, it was decided to examine the phenolized vaccine available in this country. Vaccine containing a 20 per cent suspension of horse brain or goat brain material was used. These vaccines contained 0.5 per cent of phenol. Five cats, 2 about 4 months of age, 1 about 6 months of age, and 2 about 1½ years of age, were used for the initial experiment. Each animal received 5 cc. of vaccine subcutaneously in the postaxillary region. (One animal received 2.5 cc. on each side.) Observations were made daily. Slight edematous swellings were noted at the points of injection for several days after administration. Daily temperature recordings were taken for fourteen to thirty days. The appetites of all cats remained normal during the period of observation. Three cats were observed for one month and 2 for two weeks after the vaccine had been administered. No evidence of ill effect or toxic reactions was noted.

One of us (H.W.K.) had an opportunity to vaccinate 17 cats during an epizoötic of rabies in the territory. Of the 17 cats, 10 were males and 7 were females. Two were purebred Siamese, 1 a purebred Persian, and the remainder were cross bred animals. They varied from 7 months to 9 years in age and all appeared to be in good general health at time of vaccination.

Commercial phenolized rabies vaccine (20% brain tissue, caprine origin) was used to vaccinate the 17 cats. Animals weighing less than 5 lb. received 3 cc., and those weighing over 5 lb. received 4 cc. of vaccine subcutaneously.

According to the information available to us, these cats were not exposed to rabies before or after vaccination and thus no claims can be made regarding the value of the vaccine in protecting the animals. It is assumed, however, to be of value in cats since phenolized rabies vaccine as produced in this country is tested for potency according to the Habel mouse test and has been found to be effective in challenge experiments conducted in dogs.

Under the conditions of this experimental and clinical study, cats tolerated satisfactorily doses of 3 ml. to 5 ml. of phenolized (20% brain tissue, horse or goat origin) rabies vaccine when this prophylactic agent was administered subcutaneously to healthy animals.

Drs. Scheidy and Skelley are from the Department of Medicine, School of Veterinary Medicine, University of Pennsylvania, Philadelphia; Dr. Kulp is a practitioner in Lansdale, Pa.

[1]Ferreira, Jacinto: The Sensitivity of Cats to Rabies Vaccine. Rev. med. vet., 37, (1942:191).

Rabies Vaccine Approved

The U.S. Bureau of Animal Industry has issued an unlimited license for the production and distribution of Lederle's rabies vaccine modified virus, avianized. For the past two years this vaccine has been issued under a special license.

Rabies in the United States

The U.S.D.A. reports that in 1952 there were 8,453 cases of rabies. Of these, 5,261 were dogs, 916 were cattle, 486 cats, 38 horses, 31 swine, 26 sheep or goats, and 21 were in man. Of the 1,674 miscellaneous cases, many were in foxes, skunks, and raccoons.

Texas had one fourth of the cases, over 1,000 of which were in dogs. New York led in cattle cases with 174, followed by Pennsylvania with 81; Iowa, 66; Georgia, 62; Virginia, 60; South Dakota, 58; Minnesota, 47; and Alabama,46.

Iowa led in swine cases with 8, and Penn-

sylvania in sheep cases with 7. Only the six New England states and six northwestern states reported no cases.

Rabies in Northwestern Canada

Rabies has been present in wolves and foxes in northwest Canada for many years but only since June, 1952, has it reached epizoötic proportions. It is now being brought under control by rigid quarantine, a vigorous campaign for the vaccination of dogs, and a trap line 2,500 miles long using poison bait to reduce the wild carnivores.—*T. Lloyd Jones, D.V.M., Guelph, Ontario.*

Current Diseases in Britain

Four major diseases are at present causing concern in Britain, and in three of them imported foods are a factor. Foot-and-mouth disease is introduced in imported meat and also by bird migration from the Continent, where its prevalence is blamed on the failure of vaccination to control the disease.

Over 12,000 outbreaks of anthrax were reported in 1952, ascribed to increased importation of feedstuffs and also of bones for the manufacture of glue and other purposes.

Swine fever (hog cholera) had increased tremendously the past year or so. Only five outbreaks were reported in 1949, more than 1,000 in 1952, and nearly 600 the first three months of 1953. The disease was believed to be imported in bacon and spread when exposed hogs were rushed to slaughter and their offal reached the swill bucket.—*Irish Vet. J., June, 1953.*

Built-Up Litter and Coccidiosis

Several well-known poultry pathologists were interviewed regarding the value and dangers of the "built-up-litter" program for controlling coccidiosis in baby chickens. One admitted advantage of built-up litter is that it is dry, which checks coccidial development. Frequent stirring and adding of lime or superphosphate helps to keep it dry. New litter usually contains considerable moisture and, with the old method, about the time it dried out it was changed. Also the built-up plan saved labor. Disadvantages are that it requires more ventilation to keep down the ammonia odors which may irritate the chickens' membranes, even their eyes. Also worm infestations are more probable with the long-used litter.

Some of those interviewed would change litter at the first sign of such troubles, and some would put in fresh deep litter for each brood of chicks. They would also use a preventive dose of one of three drugs in the feed to check the coccidial infestation, either sulfaquinoxaline, nitrophenide, or nitrofurazole. Some would use them on all chickens until marketed or until 12 weeks old. Others would use them only on broilers, since replacement pullets should be given more floor space and thus might pick up fewer oöcysts.—*Farm J., March, 1953.*

Pullorum Disease Reduced in Northeast

Table 1 shows the progress that has been made in the elimination of pullorum disease from commercial flocks in the northeastern states. The table is a summary of the results obtained from various states, which were reported at the twenty-fifth annual meeting of laboratory workers in pullorum disease June 16-17, 1953, in Amherst, Mass.

TABLE 1—Pullorum Testing Data Submitted by States and Canadian Provinces in the Pullorum Conference

State	Year	Birds tested	Positive (%)
Connecticut	1925	20,743	2.4
	1952	630,018	0.006
Delaware	1925	4,300	5.7
	1953	546,379	0.021
Maine	1921	2,730	22.3
	1953	1,365,314	0.027
Maryland	1927	3,725	21.0
	1953	815,250	0.18
Massachusetts	1921	24,718	12.50
	1953	1,155,359	0.04
New Hampshire	1926	35,237	2.50
	1953	1,512,219	0.00006
New Jersey	1926	52,611	7.86
	1953	1,025,449	0.035
New York	1926	59,576	6.2
	1953	810,619	0.0035
North Carolina	1952	64,702	4.02
	1953	1,668,830	0.056
Nova Scotia	1929	2,041	7.00
	1952	81,357	0.00
Ontario	1928	15,000	8.00
	1952	1,086,026	0.05
Pennsylvania	1924	2,077	15.00
	1952	1,882,712	0.2
Rhode Island	1925	8,175	6.97
	1952	61,948	0.00
Vermont	1928	8,555	7.4
	1953	234,282	0.09
Virginia	1925	13,000	20.00
	1952	1,001,364	0.37
West Virginia	1928	9,005	6.0
	1952	201,968	0.069

Observations on Treatment of Udder Infections and Clinical Mastitis with Neomycin Sulfate

E. W. TUCKER, D.V.M., and S. D. JOHNSON, D.V.M.

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NEOMYCIN SULFATE is the commercial form of an antibiotic substance first described in March, 1949.[1] The product supplied in 0.5-Gm. quantity is equivalent to 0.33 Gm. of the base material. It is stable for months in aqueous solution and is nonirritant to the udder.

In vitro, this antibiotic has a wide antibacterial spectrum and, because of that, its application in both human and veterinary medicine has been tried in those conditions where a variety of organisms could be causing the trouble. Work in 1949 showed neomycin to be more effective than any other antibiotic at that time in the ability to inhibit growth of Pseudomonas or Proteus organisms *in vitro*. Toxicity experiments in laboratory animals showed the antibiotic to be safe when used as a topical application, but that it was nephrotoxic when administered parenterally in large doses. Therefore, its general use was restricted to surface application on the skin and mucous membranes. A report was published in the fall of 1950 by Poth *et al.*[2] showing this preparation to be valuable as an intestinal antiseptic in both dogs and man. An extensive bibliography has been developed since then.[3]

METHODS

Field Diagnosis.—Routine herd examinations are conducted as follows: Udders are cleansed, after which teats are rubbed with cotton saturated with 70 per cent isopropyl alcohol, special attention being given to the end of the teat and the orifice area. Five to 10 cc. of foremilk are collected as aseptically as possible in sterile 4-dram, screw-capped vials. The secretion is examined by using the black plate strip cup and the bromthymol blue test. The latter is done in the barn by mixing 0.5 cc. of the indicator solution with approximately 5.0 cc. of the milk in test tubes. Following milking, all quarters are palpated for evidence and degree of indurations. If pus, clots, many flakes, or definitely watery secretion are found, using the black plate strip cup, the secretion is called abnormal. Usually, bromthymol blue reactions on such secretions are green or dark green. Palpation of udders is done according to the Udall system.[4]

Laboratory Diagnosis.—Samples are immediately refrigerated after collection and are kept refrigerated until used in the laboratory. There, 0.01 cc. of a well-shaken sample is surface-streaked over one quadrant of a standard Petri dish containing extract broth agar and 5.0 per cent of bovine blood of known relative staphylococcic antibody concentration. Samples of all quarters of a cow are streaked on one plate. Plates are incubated at 37 C. for eighteen to twenty-four hours and are then read for presence and general type of bacteria present. Plates are incubated another twenty-four hours and are read again. Streptococci are typed according to the modified CAMP test[5] using esculin and ferric citrate. Gram-negative rods are subinoculated into Russell's double sugar agar. *Alpha* and *beta* hemolysis surrounding staphylococcic colonies is used as the criterion of pathogenicity. Nonhemolytic staphylococci and nonhemolytic Corynebacterium organisms are regarded as not pathogenic.

Evaluation of Recovery Rate.—All treated quarters recorded here (except a few infected with Pseudomonas) had two positive pretreatment cultures of the pathogen infecting the quarter. Those Pseudomonas-infected quarters counted, which had only one positive pretreatment culture in two or more examinations, had either abnormal secretion or definite clinical histories of trouble.[6] The four "unknown" quarters (table 1) had no organisms present in any of the pretreatment cultures, yet they were producing an abnormal secretion and were clinical cases requiring treatment. All quarters with abnormal secretion were treated two times at 48-hour intervals. Reëxamination of cows was made at approximately two and four weeks post-treatment. Treated quarters classified as recovered had to be free of the original pathogen and producing normal secretion at each of the post-treatment examinations. If laboratory cultures were positive or secretion was abnormal at either examination after treatment, or if there was a clinical history of flareups, the quarter was not considered as recovered. Treated cows which were sold or died before our personal examination was made were not counted, regardless of what the owner said concerning the udder. Many treated quarters were not counted for this reason.

RESULTS

In the fall of 1950, we obtained 0.5-Gm.

Director of laboratories (Tucker) and field veterinarian (Johnson), New York State Mastitis Research and Control Program, Department of Medicine and Obstetrics, New York State Veterinary College, Cornell University, Ithaca.

vials of neomycin sulfate* for investigational use in mastitis. The original lot was used primarily in an attempt to do something beneficial about the Pseudomonas problem. Tabulated work on treatment of 56 quarters showed the product to be 42 per cent effective against Pseudomonas species and, compared with penicillin, it was relatively noneffective against the streptococci and hemolytic staphylococci.

Additional work was done with this product during 1951, with the target again being those organisms which we knew by experience were not susceptible to penicillin therapy. Results of 40 treated quarters showed a 42.4 per cent recovery against Pseudomonas-type infection, 71.4 per cent recovery against coliform infection when the neomycin sulfate powder was mixed with a water-in-oil emulsion and infused only once in some dry cows or as often as five times at twelve-hour intervals in some milking cows.

During 1951, the Upjohn Company prepared tubes containing 0.5 Gm. of neomycin sulfate mixed with 3.5 Gm. of a water-miscible ointment for instillation into quarters. Our use of this product in 31 quarters showed 29.4 per cent recovery in Pseudomonas sp. infections, 33.3 per cent recovery in hemolytic Staphylococcus infections, and no beneficial response in the few coliform, Streptococcus other than *Streptococcus agalactiae*, and *Corynebacterium pyogenes* infections. These were all treated two to eight times except one nonlactating quarter which was treated only once.

In 1952, a paper by Drury[7] showed his results with this product to be superior to the results which we have had. Accordingly, we ran a third check, directing more treatments against the common pathogens, streptococci and hemolytic staphylococci, than we did before. Neomycin ointment tubes were obtained. Neomycin sulfate powder was supplied by the Heyden Chemical Corporation of Princeton, N.J., in the dry form with 0.5 Gm. equivalent to 0.33 Gm. base. All quarters treated with the powder form of the antibiotic were infused with a water-in-oil emulsion vehicle in a volume of 10 or 20 cc.

It can be seen from table 1 that three neomycin-containing preparations were used and that there were both single and multiple injections. Generally, the multiple injections were repeated at 48-hour intervals. It would seem, in this series of quarters treated by us, that the recovery rate was not significantly affected by either the frequency of infusions or the vehicles used. Also, the volume of total infusion varied as is noted in the table, but this did not show any important difference. Because of these similarities, we have taken

*Supplied by the Upjohn Company, Kalamazoo, Mich.

TABLE 1— Results of the Use of Neomycin Sulfate in 284 Infected Quarters of 128 Cows in 18 Herds

Product used		Herds	Cows	Percentage recovery of total quarters treated**					
				Str. agalactiae	Str. other than agalactiae	Hemolytic staphylococci	Coliform type	Pseudomonas	Unknown
Teatube‖ 0.5 Gm. neomycin sulfate in 3.5 Gm. of water-miscible base.	1x	12	57	25% of 28	47% of 34	35% of 26	.....	.....	.....
As above.	2x			25% of 8	43% of 7	33% of 3	0% of 6	33% of 15	50% of 4
0.5 Gm. neomycin sulfate‡ in 10 cc. water-in-oil vehicle.	1x	8	46	22% of 51	37% of 19	6% of 18	.....	.....	.....
As above.	2x			36% of 14	0% of 4	0% of 4	0% of 1	50% of 4	.....
0.5 Gm. neomycin sulfate‡ in 20 cc water-in-oil vehicle.	1x	10	25	60% of 5	.....	50% of 4	.....	.....	.....
As above.	2x			50% of 2	.....	100% of 1	100% of 2	42% of 24	.....
284 total quarters treated.		27*	128	27% of 108	41% of 64	25% of 56	22% of 9	40% of 43	50% of 4
				29	26	14	2	17	2

*Nine duplicates. **Recovery means bacteriological and clinical cure; laboratory cure without clinical cure or vice versa is not recovery.

‖The Upjohn Company, Kalamazoo, Mich.

‡The Heyden Chemical Corporation, Princeton, N. J.

the liberty of adding the total quarters infected with the respective pathogen and showing our neomycin sulfate treatment recovery rate for each of the five infection types. This lower line might be called an over-all result of the use of neomycin sulfate against the infection regardless of the frequency of infusion, the vehicles used, or the volume of the vehicles.

DISCUSSION

In some of these herds where neomycin sulfate was used for most of the treatments, we also treated a few quarters with penicillin products or combinations of penicillin and dihydrostreptomycin. Thirteen quarters were infused with 1.0 cc. of depo-penicillin fortified,* using a blunt, 20-gauge needle as the cannula. Six others were infused with 100,000 units of crystalline G penicillin mixed with 20 cc. of penicle.** Eighteen quarters were infused with 200,000 units of penicillin (crystalline procaine penicillin G in aqueous suspension) and 0.2 Gm. of dihydrostreptomycin sulfate in 10 cc. of HP vehicle.†

These treatments using penicillin on the same type of quarters as were treated with neomycin sulfate showed 30 of 32 (94%) *Streptococcus agalactiae* quarters recovered. Too few quarters infected with streptococci other than *Str. agalactiae*, or hemolytic staphylococci, were treated in this series to determine a recovery rate, but we feel that the figures presented in previous years concerning the use of penicillin in ordinary mastitis infections still hold true. In our opinion, penicillin is still the antibiotic of choice when treating the common streptococcic and staphylococcic infections of the udder.

Infections due to organisms other than streptococci and staphylococci can cause severe mastitis. We do not know of any method of examination in the barn which will identify with certainty the causative agent of trouble in a particular quarter. Therefore, neomycin should find its place in mixtures which will be clinically effective against many types of bacteria. We have nothing to report at this time concerning combinations of neomycin with other antibiotics in udder infusions but will present such a report at the time adequate numbers of quarters have been treated.

*The Upjohn Company, Kalamazoo, Mich.
**The Pitman-Moore Company, Indianapolis, Ind.
†The Hamilton Pharmacal Company, Hamilton, N. Y.

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Report on Vesicular Exanthema

On August 12, the U. S. Department of Agriculture, for the first time, reported the presence of vesicular exanthema in Montana. Other states affected and the number of counties under quarantine are as follows: California (the entire state), Connecticut (1 county), Maine (5), Massachusetts (8), New Jersey (13), New York (2), Ohio (1), Pennsylvania (2), Texas (4). Michigan and Utah are apparently clean.

Is "Edema Disease" Enterotoxemia?

According to Dr. F. W. Schofield, Ontario Veterinary College, the disease of swine which is called "edema disease" or "gut edema" is probably not a new disease but a new manifestation of enterotoxemia of pigs, formerly called autointoxication or "pig staggers." Except for more edema in the various organs, the symptoms and lesions are the same.—*Vet. Rec., July 11, 1953.*

Phonetics

Question.—Should the 'i' in "porcine" be pronounced like that in ravine, when equine, bovine, ovine, canine, and feline use a long *i* as in "line?"

Answer.—No. This is a common error; it too should be porcine as in "line." It is also wrong to use these words as nouns. They are adjectives so must modify a noun: *the bovine species.*—ED.

Erysipelatous Arthritis in Calves

J. E. MOULTON, D.V.M.; E. R. RHODE, D.V.M.; J. D. WHEAT, D.V.M.

Davis, California

THIS REPORT deals with the clinical, pathological, and bacteriological findings in 2 calves from the same herd demonstrating arthritic symptoms and found to be spontaneously infected with *Erysipelothrix rhusiopathiae*. No other report could be found in the available literature regarding erysipelatous arthritis in cattle.

CLINICAL FEATURES

Two 8-month-old Hereford steers were referred to the clinic in October, 1952. These were from a herd of approximately 20 cows with calves, and of 20 steer calves in this herd, 6 showed symptoms of stiffness and swollen, painful joints. The calves had first developed detectable lameness at 2 to 6 months of age. One steer and 1 heifer calf had shown similar symptoms the previous year.

Both of the calves presented for study had been lame for three months. Rectal temperatures were normal on arrival and for the duration of the observation period.

Calf A had gross enlargements of both tibiotarsal joints and the right carpal joint (fig. 1). The enlargements were firm except near the union where increased synovial fluid produced fluctuation. The gait was stiff, the calf walked on his toes, movement was painful, and flexion and extension were markedly impaired in the affected joints. The calf preferred to remain in a recumbent position.

Roentgenographic findings in the tibiotarsal joints of calf A were periostitis with evidence of periosteal reaction to infection (fig. 2).

The symptoms in calf B were similar to those of calf A. Calf B showed the greatest swelling in both stifle joints, the left tibiotarsal and the left carpal joints. This calf was observed for two months, during which no treatment was administered and no change in symptoms occurred.

Both animals maintained good appetites during the period of observation, but both were in poor condition at the time of arrival and did not improve appreciably.

From the School of Veterinary Medicine, University of California, Davis.

Blood studies two days after admission are shown in table 1.

TABLE I—Hematological Findings in Two Calves Affected with Erysipelatous Arthritis

	Calf A	Calf B
Hemoglobin (cm./100 ml.)	12.95	11.85
R.B.C. (10^6)	13.9	12.4
W.B.C. (10^3)	17.7	15.6
Differential counts:		
Polymorphonuclear cells (%)	20.0	15.0
Lymphocytes (%)	74.0	76.0
Monocytes (%)	6.0	7.0
Eosinophils (%)	—	1.0
Basophils (%)	—	1.0
Eosinophil count (cmm.)	71.5	330.0
Brucellosis *titer*	Neg.	Neg.

PATHOLOGICAL FINDINGS

Calf A.—Calf A was killed by electrocution and examined immediately. The only gross lesions were those involving the joints. Many of the appendicular articu-

Fig. 1—Left tibiotarsal joint of calf A showing gross enlargement.

lations showed enlargement to some degree, but this was most marked in the hocks, stifles, and hip joints. The affected joints showed periarticular fibrosis and edema. The joint cavities contained up to 10 ml.

Fig. 2—X-ray of tibiotarsal joint of calf A showing soft tissue swelling.

of cloudy, white fluid of about the same consistency as normal synovia. There was no fibrin, purulent exudate, or free blood.

The synovial membranes of the involved joints were thickened, pink, and roughened or even finely trabeculated. Near the periphery, there were many small, inconspicuous villous tufts. The largest villi measured up to 1 cm. in length.

The articular cartilages showed punctiform erosions which varied in diameter from 0.5 to 1.0 cm., with a depth up to 1 cm. One acetabulum showed an extensive erosion extending out from the acetabular notch (fig. 3). The erosions extended through the articular cartilages and into the bony plate of the epiphysis, and in the acetabula the erosions completely perforated the bone. No regeneration of bone or cartilage and no eburnation were noted.

The granulation tissue (pannus) which filled the cartilagenous erosions was soft, dark red, and emanated from the synovial lining. It did not extend over the noneroded articular surface. There were no adhesions of opposing articular surfaces by synovial membrane or granulation tissue.

Tissue blocks of villi, periarticular connective tissue, and synovial membranes from calf A were fixed in 10 per cent formalin and stained with hematoxylin and eosin, Gram's stain, azocarmine, and McManus' periodic acid-Schiff method. Microscopically, the synovial villi showed a mild degree of diffuse infiltration with neutrophils, lymphocytes, and plasma cells. These were especially evident directly beneath the synovial cell layer. More marked were focal collections of lymphocytes and lymph follicles found in many of the enlarged and lengthened synovial villi (fig. 4 and 5). Sections stained with azocarmine showed definite circumscription of these follicles by collagen fibers.

The villi were supported by well-vascularized collagenous connective tissue which appeared loose and edematous below the synovial cell layer. The connective tissue of the villi was continuous with dense collagenous tissue around the joint.

The granulation tissue from the synovial tissues, which extended into the cartilagen-

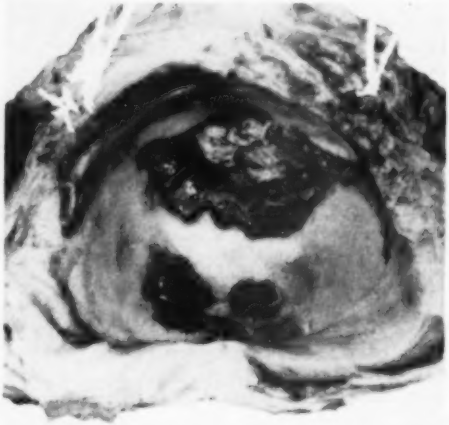

Fig. 3—Acetabulum of calf A showing erosion extending out from acetabular notch and two erosions opposite.

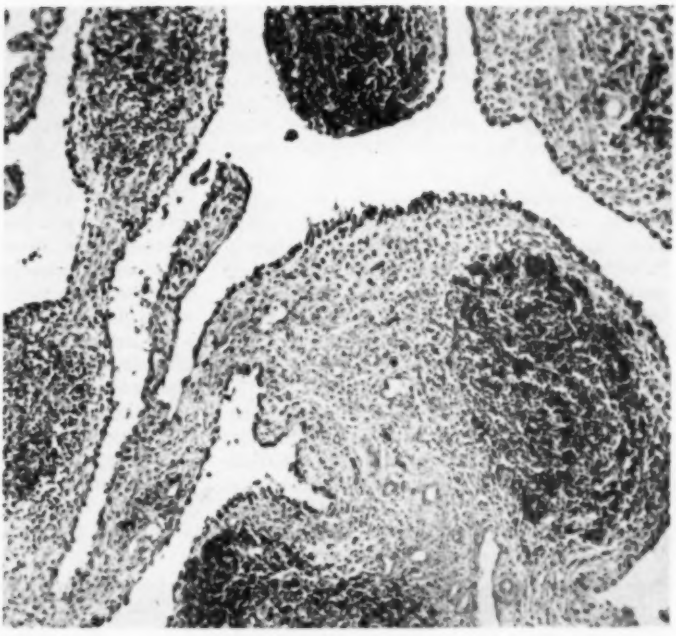

Fig. 4 — Photomicrograph of one of the lengthened synovial villi. Especially prominent are focal collections of lymphocytes. x 225.

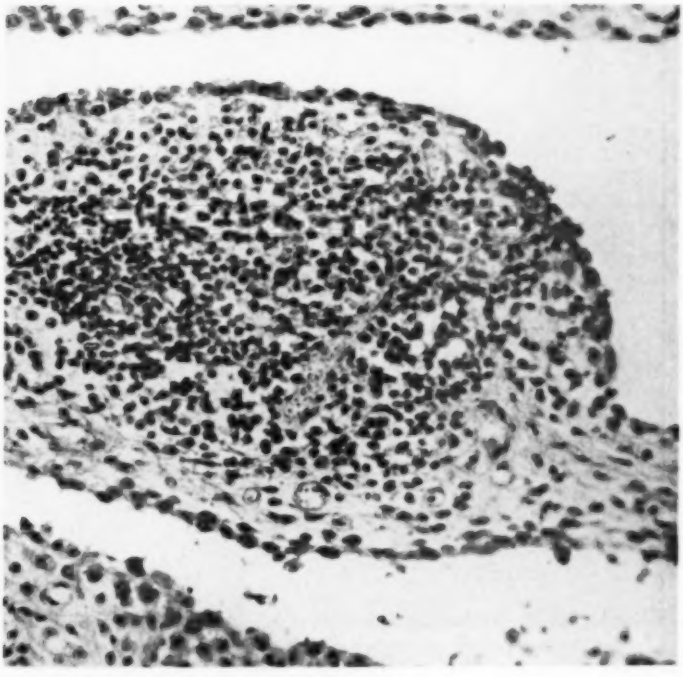

Fig. 5 — Photomicrograph of synovial villus showing one of the lymphocytic collections in greater detail. x 450.

ous erosions, showed active fibroblastic proliferation with marked vascularization and focal areas of necrosis and hemorrhage.

Sections stained with Gram's method for bacteria and McManus' periodic acid-Schiff method for polysaccharide complexes were negative.

Calf B.—Calf B was also killed by electrocution and autopsied immediately. The liver appeared slightly swollen and showed faint yellowish discoloration. The trachea and bronchi contained small amounts of white froth and some of the terminal bronchial branches were impacted with lungworms. The lung tissue distal to the impacted bronchi was emphysematous. The pericardial sac contained 5 ml. of serosanguinous fluid. The outstanding lesions were found in certain appendicular articulations. Those involved, in order of severity, were (1) stifles, (2) hip joints, (3) hocks, and (4) elbow joints. The other articulations were not noticeably affected. The diseased joints were markedly swollen and fluctuating. On incision, 5 ml. of fluid escaped from one of the hip joints and 100 ml. from a stifle joint. This fluid was tan to pink in color, more viscid than normal synovial fluid, and cloudy. It contained no fibrin or purulent exudate.

The synovial sacs of the affected articulations were greatly enlarged, pink, edematous, and irregular in contour (fig. 6). At the margins, they appeared reddened with multiple, enlarged villi. Fluid-filled soft tissue cavitations extended peripherally from the synovial sacs. The joints showed very little periarticular fibrosis.

Punctiform erosions extending through the articular cartilages and into the bone of the epiphysis were observed in all affected joints. One acetabulum showed an erosion 3.5 cm. in diameter, extending out from the acetabular notch. Many of the

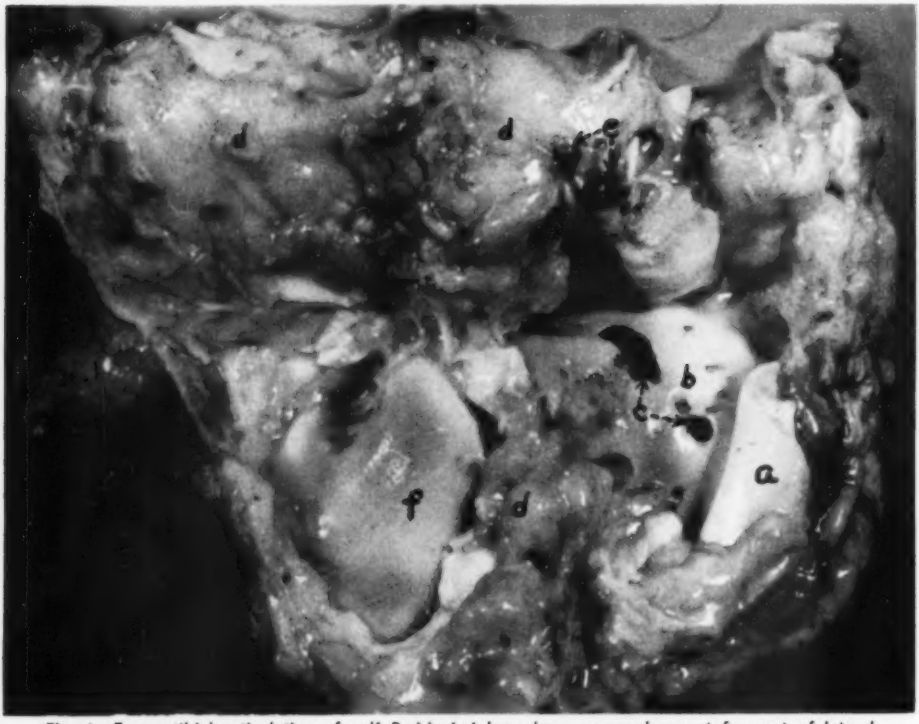

Fig. 6—Femorotibial articulation of calf B. Menisci have been removed except for part of lateral meniscus (a) at right of photograph. Lateral condyle of tibia (b) shows punctiform erosions (c). Synovial membrane is enlarged, thickened, and irregular in contour (d) with several swollen villi at top middle of photograph (e); medial condyle of the tibia (f).

erosions were filled with pannus, but there was no extension of this over the articular surfaces. No fibrous or osseous ankyloses were observed.

Several of the old, enlarged synovial villi from diseased joints in calf B were fixed by 10 per cent formalin and stained routinely with hematoxylin and eosin. Microscopically, they showed loose collagenous connective tissue proliferation with marked vascularization. The appearance was that of chronic granulation tissue. Leukocytic reaction was minimal and only a few mononuclear cells were scattered throughout the connective tissue stroma. There were no follicle-like lymphocytic aggregations in these villi. A few scattered macrophages filled with hemosiderin were observed. There was no definite synovial cell layer around the villi. The collagenous connective tissue merged into hyaline scar tissue near the free ends of the villi.

Bacteriological Studies

At the time of autopsy, Gram stains were made from the synovial fluid of an involved hock joint in calf A. These stains showed no bacteria. At the same time, a blood-agar plate was smeared with 1 ml. of fluid and incubated at 37 C. This showed no growth in seventy-two hours, but after ninety-six hours there were three minute bacterial colonies with narrow zones of discoloration, viridans type. These were stained by Gram's method and showed small gram-positive rods which tended to form short chains. The colonies from the blood agar were next transferred to cooked blood agar and incubated at 37 C. After twenty-four hours of incubation, these plates showed abundant growth of colonies which were morphologically similar to those on the original bood agar.

The bacterial colonies from the cooked blood agar were inoculated into differential mediums. These were incubated at 37 C. and observed at one-, two-, four-, and seven-day intervals. Nitrates were not reduced; indol was not formed; litmus milk was unchanged; and esculin was not hydrolyzed. Hydrogen sulfide production was abundant. Galactose and mannose remained unchanged, while slight acid and no gas were noted in tubes with dextrose, levulose, and lactose.

The culture from the cooked blood agar was transferred to thioglycollate broth, incubated twenty-four hours, and used in mouse-protection tests. For this, 5 mice were used, 3 of which received 0.5-ml. subcutaneous injections of swine erysipelas antiserum. All mice were then injected subcutaneously with thioglycollate broth culture. The amounts varied from 0.1 to 0.5 ml. The 2 unprotected mice died in three and four days, respectively, while the 3 mice which had received the swine erysipelas antiserum remained alive and well for three weeks, at which time they were destroyed. Gram stains and blood agar cultures were made of the heart blood and livers of the unprotected mice and these showed bacteria morphologically and culturally similar to those from the calf.

Joint fluid from calf B, which was in a more chronic state than calf A when killed, was removed aseptically from a stifle joint for bacterial culture at the time of autopsy. Whole and cooked blood-agar plates were smeared with 0.5 ml. amounts of joint fluid and incubated at 37 C. The plates were examined daily and held for seven days without showing any bacterial growth.

Discussion

The herd history did not lead us to any conclusion as to the entrance of the infection. No evidence of umbilical infection was found nor could castration be incriminated, since some of the calves in the herd developed symptoms prior to castration. No other species of animals were on the ranch, but swine had been kept on the same ground six years previously. The swine herd at that time contained several animals with undiagnosed arthritis. The calves were housed in the old swine shed and lots for several weeks prior to development of symptoms.

The joint lesions in the calves were characteristic of proliferative (rheumatoid) arthritis and, except for less pronounced villous proliferation, were similar to the joint lesions found in swine infected with chronic erysipelas. The scarcity of erysipelas organisms in the affected joints was evidenced in calf A where after ninety-six hours only 3 bacterial colonies appeared on blood agar following inoculation of 1 ml. of joint fluid. This also is somewhat characteristic of erysipelatous arthritis in swine and it demonstrates the necessity of holding cultural mediums for a longer period than is routine. The final diagnosis

of erysipelas was made only after positive results were obtained in the mouse-protection tests.

SUMMARY

1) Six out of 20 calves in a herd showed symptoms of lameness with swollen, painful joints.

2) Two 8-month-old steer calves from the herd were observed clinically and showed tibiotarsal, stifle, and carpal joint enlargements. The joints were firm except near the union where increased synovial fluid produced fluctuation.

3) The lesions at autopsy were restricted to the joints which showed large amounts of fluid and marked proliferation of synovial membranes with villous growth. Articular cartilages exhibited extensive erosions. Ankylosis was not observed.

4) Microscopically, proliferative villi revealed diffuse and focal neutrophilic and mononuclear cell infiltrations. Especially prominent were focal collections of lymphocytes.

5) Bacteria from the hock joint in one case were morphologically and culturally similar to *Erysipelothrix rhusiopathiae*. The organism was further identified by mouse-protection tests.

Intracaudal Vaccination with *Brucella Abortus* Strain 19

This is the third report[1,2] of an experiment in Australia and New Zealand which compared the value of vaccinating heifers intracaudally and subcutaneously with *Brucella abortus* strain 19 vaccine. This report covers the immunity challenge in the third year after vaccination. The animals available for challenge were in two categories. Class 1 consisted of previously unchallenged pregnant animals, 20 of which had been vaccinated intracaudally and 17 subcutaneously, and 21 unvaccinated controls. Class 2 differed only in that they had been previously challenged.[2]

All of these animals were 36 to 39 months old and had been pregnant for seven to seventeen weeks. Those vaccinated intracaudally had received 1 cc. of vaccine in the fibrous tissues near the end of the tail, while those vaccinated subcutaneously had received 5 cc. The method of challenge was to place these animals in an infected herd which was experiencing an "abortion storm." The first abortion occurred in a control animal in thirteen weeks. By the twenty-eighth week, the abortions had subsided with 11 vaccinated animals having aborted.

In class 1, abortions had occurred in 52 per cent of the control group, 29 per cent of the intracaudal group, and 13 per cent of the subcutaneous group. Serological tests indicated infection in 95 per cent of the control group, 40 per cent of the intracaudal group, and 35 per cent of the subcutaneous group. In class 2, for which this was the second exposure, there were no abortions but serological tests indicated infection in 18 per cent of the intracaudal group and in 9 per cent of the subcutaneous group. The authors summarized the experiment by stating that neither on the first nor the second exposure was there any significant difference in the immunity produced by the two methods of vaccinating.—*Austral. Vet. J., April, 1953.*

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Vaccination via Three Routes with Strain 19

Vaccination of 9- to 12-month-old Zebu heifers in Nigeria with strain 19 *Brucella abortus* vaccine via three routes was observed. The titers, production, and duration were essentially the same whether 5 cc. was injected subcutaneously behind the shoulder, 1 cc. intracaudally near the tip of the tail, or 1 cc. in the caudal fold. The intracaudal route was difficult and painful, requiring greater restraint of the animal. The caudal fold route is more simple and the results have been uniformly good.—*Brit. Vet. J., June, 1953.*

Failure to give tetanus antitoxin following such operations as amputating a bovine digit may result in a fatality.—*R. L. West, Jr., D.V.M., Waseca, Minn.*

Fowl cholera is the only disease in which petechial hemorrhages are likely to be found in the fat in the abdomen and at the apex of the heart.—*C. D. Lee, D.V.M., Ames, Iowa.*

Residual Arsenic in Swine Tissues Following Oral Administration

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Philadelphia, Pennsylvania

THE LITERATURE appears to contain very little information regarding the absorption, concentration in tissue, and elimination of arsenic when this element is fed to swine. Since arsenical preparations are used as medicinal or insecticidal agents in this species of animal, it was considered of interest to conduct an experiment from which one might obtain some of the desired information. In this study, we were particularly interested in determining the tissue concentrations of arsenic, especially of those tissues usually used for human food, following oral administration of an arsenic compound.

MATERIAL AND METHODS

Fourteen crossbred, normal, healthy pigs, 7 males and 7 females weighing 40 to 90 lb., were used in the test. They were maintained on a ration of commercial grain (meal), fed as wet mash, and whole oats. Water was given *ad libitum*. During the experimental period, the animals were kept in pens with concrete floors, located in a barn. They were observed for two weeks to make certain that they were satisfactory for use in the test.

Prior to the period of drug feeding, the animals were divided into groups of 2 each, according to size, in order to have pairs of animals of approximately equal weight in each test. Each dose of the drug was added to wet mash and was fed once daily to each individual animal so that proper dosage was assured. Each pig was weighed at the beginning and at the end of the experiment. This was done to calculate as accurately as possible the dosage on the basis of body weight and also to determine whether the treatment had any adverse effect on weight gain.

The drug was prepared in the following manner: Water-soluble tablets, each containing sulfathalidine ®* phthalylsulfathiazole, 2 Gm.; arsenic, 52 mg. (as sodium arsanilate); and excipient *q.s.*, 7.7 Gm., were dissolved in water and a quantity of the solution containing the desired dosage was added to wet mash which was fed from a trough. Each animal was guarded by an attendant who made certain that it ate its proportionate share of medicated feed.

The dosage schedule for 6 pigs (No. 1, 2, 7, 8, 11, and 12) was sulfathalidine, 2 Gm., and arsenic, 52 mg., per 30 lb. of body weight per day. For 6 other pigs (No. 4, 5, 10, 13, 14, and 90), the dosage was twice the above amount. Each group received the drug for seven consecutive days. Two pigs (No. 3 and 6) were maintained as controls: they received the same ration without medication.

Three days and eight days after the last doses of the drug, 2 animals from each treated group and 1 untreated animal were exsanguinated. The following 16 tissue samples were harvested for determination of arsenic concentration: blood, fat, large and small intestine, liver, kidney, skin, pancreas, muscle, bone, stomach, bile, heart, bristles, spleen, and feet. Most of the tissues were finely ground in a meat grinder and immediately frozen. They were reground subsequently, frozen again, and stored until they were submitted for testing in the laboratory.**

All of the animals used in this experiment remained normal and grew satisfactorily during and following administration of this preparation as described above. No evidence of gross postmortem lesions was found in any of the carcasses, with the exception of parasites (ascarids) in the intestines of 3 animals. Only a few of these parasites were found in each animal.

Table 1 indicates the concentrations of arsenic in various tissues harvested from 8 treated and 2 untreated control pigs. (The Gutzeit method was used for the determination of arsenic.) Duplicate samples were tested and results were similar (table 1).

From these data, it is evident that the concentration of arsenic (expressed as arsenic trioxide) following the ingestion of 2 (or 4) Gm. of sulfathalidine and 52 (or 104) mg. of arsenic per 30 lb. of body weight daily did not produce alarmingly high concentrations of the element in any of the 16 tissues examined at three or eight days following the administration of the preparation. Detectable concentrations of arsenic also were found in some tissues from the untreated control animals; however, the tissues of 1 animal had more than

From the Medical-Research Divisions, Sharp & Dohme, Inc., Philadelphia, Pa.

*Sulfathalidine® phthalylsulfathiazole is prepared by Sharp & Dohme, Inc., Philadelphia, Pa.

**LaWall and Harrisson Laboratories, 1921 Walnut Street, Philadelphia, Pa.

TABLE I—Arsenic Content of Swine Tissues (Part per Million as As_2O_3)

Pig (No.)	Daily dosage arsenic mg./30 lb.	Destroyed after last dose (day)	Intestines		Liver	Pancreas	Heart	Kidney	Spleen	Blood	Bile	Fat	Muscle	Bone	Skin	Feet	Bristles
			Stomach	Small	Large												
1	52	3rd	0.25	0.15	0.45	3.0	0.12	0.20	0.65	0.20	0.28	0.41	0.02	0.10	0.090	0.30	0.32	1.37
11	52	3rd	0.04	0.15	0.40	4.2	0.05	0.30	0.90	0.26	0.40	1.80	0.03	0.20	0.150	0.10	0.20	1.70
90	104	3rd	0.40	0.60	0.55	2.25	0.23	0.40	1.1	0.27	0.25	1.00	0.10	0.25	0.20	0.30	0.45	5.30
10	104	3rd	0.20	0.40	0.35	2.0	0.27	0.35	0.45	0.30	0.40	.....	0.10	0.40	0.22	0.30	0.50	1.70
3	0	3rd	None	0.020	0.060	None	None	0.08	None	0.10	0.03	None	None	None	0.01	0.05	0.08	0.053
2	52	8th	0.01	0.10	0.01	1.20	0.01	0.01	0.20	0.09	0.01	0.07	None	0.035	0.25	0.10	0.20	1.78
8	52	8th	0.10	0.045	.....	1.50	0.035	0.045	0.20	0.052	0.020	0.067	None	0.05	0.055	0.125	0.30	1.40
4	104	8th	0.10	0.40	0.01	2.60	None	0.01	0.40	0.044	0.125	0.40	0.01	0.10	0.10	0.2	1.0	2.50
5	104	8th	0.095	0.20	0.20	1.55	0.41	0.15	0.40	0.12	0.15	0.078	0.90	0.15	0.06	.....	0.475	1.42
6	0	8th	None	None	None	0.02	None	None	None	None	None	None	None	None	0.01	None	0.09	0.04

Pigs 7 and 12 (52) and 13 and 14 (104) were not killed.

those of the other. This fact remains unexplained.

The 4 remaining animals were observed for a survival test period of four months after treatment; they remained well and grew satisfactorily.

SUMMARY

Sulfathalidine phthalylsulfathiazole, 2 Gm., and arsenic, 52 mg., per 30 lb. of body weight, and twice this amount given orally once daily for one week, did not produce any evidence of toxicity in young, apparently healthy shoats.

Tissue concentrations of arsenic in samples of blood, fat, muscle, stomach, small and large intestines, liver, kidney, skin, pancreas, bone, bile, heart, bristles, spleen, and feet were determined by the Gutzeit method. They varied from 0.01 to 5.3 parts per million, the highest concentrations being found in bristles, liver, bile, kidney, and feet.

Experiments with Swine Erysipelas

British research workers report that a single dose of a formalized, aluminum hydroxide adsorbed swine erysipelas vaccine produced a good immunity for at least ten weeks. When shoats 4 to 5 months old were vaccinated and their immunity later challenged by the percutaneous method, the results were not definite since a few of the controls failed to react. Another group of 3- to 4-month-old pigs was "prepared" by being vaccinated with crystal violet cholera vaccine and challenged three weeks later with virulent hog cholera virus, a challenge which they withstood regularly.

In another three weeks, some of the animals in this group were vaccinated with erysipelas vaccine and the others left as controls. This group was then challenged, some at four weeks and the others at ten weeks by injecting 2 cc. of erysipelas culture into their gluteal muscles. While none of the vaccinated pigs challenged at four weeks showed any signs of a reaction, some challenged at ten weeks had a transient febrile reaction, probably indicating that their immunity was waning. The unvaccinated pigs reacted violently, several of them dying.—*Vet. Rec. Jan. 17, 1953.*

Protection from X Rays in Veterinary Radiology

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THERE IS abundant evidence to show that many veterinarians who use x rays in their practice do not take sufficient precautions to protect themselves from the harmful effects of these rays. This is mainly because they are not concerned enough about the risks they are taking. The deans of the veterinary schools should see to it that all graduating students have been well instructed in x-ray protective measures and in the latent and irreversible damage produced by overexposure. Appreciation of the dangers and knowlege of how to prevent them will save many crippling cases of x-ray burns.

Nearly thirty years ago, Russell D. Carman[1] wrote: "That the practice of radiology entails certain hazards to health and life was forcibly impressed on its practitioners many years ago, but not until a large number of radiologists had suffered or died from radiodermatitis and cancer . . . . It was soon learned that this danger could be averted by the ordinary precautions which are now habitually employed. So effective are these methods in the prevention of skin lesions that the radiologist has apparently been lulled into a false sense of security from all harm. His serenity is not due to ignorance but to an unwarranted optimism in the face of his abundant knowledge." The knowledge of radiation damage is much greater today than when Carman wrote those words. Well-trained radiologists minimize the x-ray exposure to the patient's normal tissues and they avoid as much as possible exposing themselves to any x rays.

As a group, *veterinarians suffer from improper use of the fluoroscope* more than from any other type of x-ray equipment. Adequate protection during fluoroscopic examination can be achieved in a practical way. It is important to do so because the fluoroscopist is in proximity to the x-ray tube and to the patient.

ORIGIN OF DANGEROUS X RAYS

X rays are produced at the focal spot of the x-ray tube. They radiate in all directions from this small area and therefore decrease in intensity very rapidly as the distance increases.* Keeping as far away as possible from the source is important unless adequate protective material such as lead or steel is placed between the source and the personnel to be protected. The useful x-ray beam passes through the window and is the most intense radiation that we are dealing with. Beware of getting in the path of these rays. Besides the direct x rays that might come directly through the housing of the x-ray tube, and the useful x rays, it is necessary to protect oneself against scattered x rays. Whenever x rays strike an object, some of them are scattered in all directions. As a consequence, if a well-defined vertical x-ray beam is directed on a patient, part of these rays will be scattered horizontally and one standing nearby will be exposed to them. They will also be scattered from parts of the fluoroscope itself, as from the tube side of the fluoroscopic screen, the table top, and the edges of the shutter or diaphragm which limits the x-ray beam. Another important thing to know is that the amount of scattering increases as the volume of material (such as tissue) is increased. For this reason, reducing the size of the beam during an examination will, in itself, afford considerable protection both to the fluoroscopist and to the patient.

FLUOROSCOPIC EQUIPMENT

The fluoroscope consists essentially of three divisions: (1) the electrical controls, the power supply, and the x-ray tube with its shutters to control the size of the useful x-ray beam; (2) the table upon which the patient is placed; and (3) the fluoroscopic screen with its protective lead glass.

The x-ray tube should be surrounded by enough x-ray absorbing material so that essentially no x rays get through except in the direction of the useful beam. This is of great importance because the doctor is close to the tube and the intensity of the x rays might otherwise be very great. The useful x-ray beam should be limited by an adjustable diaphragm (or shutters) which, when open to the fullest extent, leaves a

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*The fall-off in intensity of x rays as the distance from the source is increased, is called the "inverse square law." It means that if the distance from the source is doubled, the intensity becomes one-quarter; if it is tripled, the intensity becomes one-ninth, etc.

border of ¼ inch of unilluminated fluorescent screen. This allows the fluoroscopist to be sure that no x rays are by-passing the protective lead glass of his screen. If such should happen and they fell on the observer he would soon be over-exposed. The shutters should be easily adjustable during fluoroscopy by handles that can be conveniently operated by the gloved hand (fig. 1A). Using a fixed diaphragm which gives a large x-ray beam is undesirable because the fluoroscopist is then always exposed to the maximum scattered radiation. If a filter of 1 or 2 mm. of aluminum is placed in the beam near the x-ray tube, the screen brightness will be cut down a little but the dose to the patient and the scattering to the fluoroscopist will be cut down in a much greater proportion.

—Kelley-Koett Manufacturing Company

Fig. 1—Combined therapy and radiographic machine which is also used for fluoroscopy by placing x-ray tube under the table. Shutters and cone limit spread of the x-ray beam and cut down scattered radiation. Handles (A) for shutter control, seen at corner of fluoroscopic screen, are conveniently operated with the gloved hand. Leaded apron at right is always worn.

Some veterinarians have fluoroscopes without any diaphragm and consequently the x-ray beam is far too wide and they subject large portions of their bodies to the direct beam. Such an arrangement is inexcusable and should not be employed. The x-ray tube should be about 18 inches from the table top. This much distance insures less geometrical shadow distortion and less dosage to the patient for a given screen brightness. The latter means less scattering of the x rays toward the fluoroscopist.

The fluoroscopic table should have a top made of material which is readily penetrated by the x rays and which is uniform in structure so that it does not cast any irregular shadows on the screen. When x rays irradiate any material, they are scattered in all directions. The scattered rays are much less intense than the direct rays but they can still be a major hazard. The larger the volume of matter that is traversed by an x-ray beam the greater will be the amount of scattering. This is one reason that it is so important to cone the beam down with the shutters to the smallest size consistent with the examination being made. The less scattering that strikes the fluoroscopic screen the less background illumination will be produced and, therefore, the better the shadow contrast and detail. If the hands are not protected, they are apt to receive a high dosage of scattered rays from the table top and the patient. This should be avoided by keeping the hands away as much as possible. *Never*

—Kelley-Koett Manufacturing Company

Fig. 2—Example of a small and well-designed fluoroscope. Protection from x-ray scattering from under the table is afforded by leaded cone above the x-ray tube (not shown) and by metal panel across front of table. Tube and screen are interlocked and move together. X rays are conveniently turned off and on by foot switch. Patient is given sedation and immobilized with sand bags.

put the hands in the direct beam, even when wearing leaded gloves.

Scattered x rays from the under side of the table should be avoided. The x rays after leaving the x-ray tube pass through the aperture of the shutters and strike the under surface of the table top. To prevent scattering from this area, a lead-lined cone with its wider end toward the table may be attached to the x-ray tube. If the x-ray tube is movable on a track, the cone is terminated just short of the under surface of the table top in order to allow it to move freely with the x-ray tube. Since there will always be some scattering from the table top, and more from the patient, even though the x-ray beam is coned down the way it should be, it is advisable to *wear a protective lead apron every time the fluoroscope is used* (Fig. 2). The lead equivalent of the apron should be at least 0.4 mm.

The type of fluoroscopic screen used and its size and mechanical arrangement are of the greatest importance. There are different types of fluorescent materials used to make fluoroscopic screens. Some are much better than others in that they produce a brighter image and do not suffer from afterglow. A screen that was originally satisfactory can be seriously impaired in its efficiency by maltreatment. The newer type screens are damaged if exposed to sunlight. The Patterson type B2 screen is efficient and satisfactory for general work. All screens are badly affected by oil, grease, or dust deposits on their surfaces.

When the efficiency of a fluoroscopic screen is low, there is a tendency to compensate for this by increasing the x-ray intensity. This results in a corresponding increase in x-ray exposure to the fluoroscopist. Or if visibility is poor, the examination time is increased and again the fluoroscopist is exposed to more x rays.

It is absolutely essential that the fluoroscopic screen be covered with a sheet of clear lead-containing glass. Commercial lead glass which is about ¼ inch thick is available for this purpose. The protective equivalent of this glass should be 1.5 mm. of lead for tube potentials up to 100 kilovolts peak. Light from the screen passes through the glass to the observer's eyes but the direct x-ray beam is blocked off. In this way the head and neck of the observer are protected. The fluoroscopic tube should be mounted on tracks so that the operator can easily move it in the longitudinal and cross directions of the table. This permits the fluoroscopist to direct the x-ray beam to the desired area without moving the patient. The screen is mounted on the common movable support so that it always moves in exact alignment with the x-ray beam.

Here mention must be made of the fluoroscopic screen with hood for the eyes, which is held in one hand during examination. Such a device is sometimes called a "hand fluoroscope." It is discouraging to find that many veterinarians still use this antiquated device. Even though the hand fluoroscope contains a sheet of lead glass over the screen to protect the observer, there is no provision for proper alignment with the x-ray beam except through the constant attention of the observer on the beam outline shown on the screen. It is too much, as repeatedly demonstrated in practice, to expect the fluoroscopist to hold a rather heavy screen in one hand while maintaining the alignment, manipulating the animal, and concentrating on his fluoroscopic findings, all at the same time.

It is tempting for the veterinarian to use a small x-ray machine placed close to an ordinary wood-top table, and a hand fluoroscopic screen as a makeshift fluoroscope. This combination may be used in a room which is not darkened and with the eyes not dark-adapted. This is the most dangerous combination possible. It is an example to illustrate the paradox that *the smaller the x-ray machine the more dangerous it may be.*

STRUCTURAL SHIELDING

From the above discussion of the sources of scattered x rays reaching the fluoroscopist's body, it can be seen that a great amount of protection may be provided by the strategic placing of a small amount of x-ray absorbing material around the fluoroscope. It is an axiom in protection technique that the closer the protective material is placed to the source of the x rays the less mass of material will be required for a given degree of protection. As previously stated, x rays direct from the focal spot may penetrate the tube housing. These rays will be very penetrating and may be of high intensity. A small amount (about 2 mm.) of additional lead around the center of the tube will cut these down to a harmless level. It should be mentioned that x rays sometimes escape from the cathode

(filament) end of the tube because of inadequate protective materials.

Scattering occurs from shutters and their associated mechanism or from a fixed diaphragm. This can be intercepted by a protective structure which envelopes the shutters or diaphragm. A cone of protective material, as mentioned previously, should extend from the under side of the table into this structure. Downward scattering from the table top and from the patient can be effectively absorbed by steel side panels fastened to the fluoroscopic table. If there is a horizontal slot in this shield to permit placing a cassette under the table, then a removable auxiliary shield should cover this during fluoroscopy.

Scattered radiation from the patient is, as has been shown by many investigators,[6] a potential hazard of great importance. Lead rubber curtains (having an absorption equivalent to 0.4 mm. of lead) hanging from the edges of the screen afford effective protection. They would be more widely used if they did not sometimes interfere with manipulation of the patient. A single curtain suspended from the front edge of the screen and hanging down below the table-top so as to intercept all scattered x rays would make it unnecessary for the fluoroscopist to wear a lead apron. The apron should be worn for unusual types of examination when the fluoroscopist's body occupies a position which is not shielded by the curtain.

OPERATING PROCEDURES

By having a clear mental picture of the sources and magnitudes of secondary or scattered radiation, the fluoroscopist can protect himself to a great degree. This is done by developing the proper habits of examination procedures.

In the first place, the fluoroscopic room should be thoroughly darkened, except for a small amount of red light which will enable one to see objects in the room. The red light should not fall directly on the fluoroscopic screen. It is best to automatically turn out the red light when the fluoroscope is turned on. If red light is of low intensity it will not interfere with dark adaptation of the retina. The fluoroscopist should have his eyes dark-adapted before he starts his examination. Dark adaptation concerns a great deal more than just dilatation of the pupils.[2] It requires at least fifteen minutes in the dark (or with the proper red goggles) and considerably longer if one has recently been in the sunlight. With the eyes dark-adapted, the fluoroscopist is able to see details of the anatomy which he otherwise would miss entirely. He is able to do his work much faster and thus expose himself for a shorter time to any x rays.

The size of *the x-ray beam should be as small as is practicable.* This will (1) reduce scattered radiation, (2) give a clearer image on the fluoroscopic screen because of less scattered radiation, (3) make it less likely that assistants' hands holding the patient will get in the direct x-ray beam, and (4) protect the patient.

The kilovoltage to employ depends upon the thickness of the part. For the best visibility and least exposure to the patient, higher kilovoltages (say 80 or 90 kilovolts instead of 60) are better.[2] When the kilovoltage is increased, the milliamperes should be reduced as much as possible while still maintaining a good screen image. This protects the fluoroscopist and the x-ray tube.

The x rays should be turned off as much as possible. This is accomplished by positioning and manipulating the patient with the beam off. Also by gaining a good mental impression from rather short exposures and then doing your thinking with the x rays off.

Lead protective gloves should be worn by the fluoroscopist to protect his hands from scattered x rays (proximity to the part means high intensity), and from the direct x rays, should he inadvertently get his hand in the beam. They should also particularly be worn by assistants holding the patient. It is preferable to hold the patient by mechanical devices when this can be done. A lead protective apron worn by the fluoroscopist's assistant will greatly protect the major part of his body.

ROENTGENOGRAPHY AND THERAPY

The laws of scattering of x rays, which have been discussed above, are the same in roentgenography and in therapy as they are in fluoroscopy. In roentgenography, the exposures are naturally self-limiting because if overexposures are made, the films will be too dark. The roentgenographer is apt to be farther away from the x-ray tube and the patient, and he should be behind a

protective screen. However, in the roentgenography of large animals considerable exposures are required with corresponding increase in scattered radiation so that even though the exposure times are relatively short, exposure of a person to the scattered radiation may be large and should be avoided. It is strictly inadvisable to hold a patient to immobilize it while it is being roentgenographed, or to hold the cassette because in this way the hands and parts of the body of the holder will be exposed to direct as well as to the scattered x rays. Therefore, it is important to use mechanical means of holding cassettes and to *restrain animals* by means of racks and *by sedation*. If on rare occasions this precaution can not be complied with, then the holder should be protected with lead gloves and apron. Even with these precautions, care should be taken not to repeat the procedure unless it is a real emergency because apron and gloves do not provide adequate protection under these circumstances.

In x-ray therapy, especially deep therapy, greater protective measures should be employed. The x-ray tube voltages are apt to be higher and thus the x rays will be more penetrating. Exposure times will be long and the integrated dose large. The x-ray beam passing through the patient (the exit dose) may be high. It is unthinkable to allow oneself to be exposed to this beam. The scattering produced by the beam striking a wall may produce intensity levels in a moderate size treatment room which are much above the maximum permissible intensity. Great care must be exercised to absorb the exit x rays and the therapist should be in a well-protected control room outside of the treatment enclosure. Economy may be gained in the structural protective materials[3] by mechanically limiting the angulation of the useful x-ray beam. Areas occupied by personnel should be monitored by a radiation physicist to see that radiation levels are not too high.

SUMMARY

Many veterinarians are producing irreparable damage to themselves by being unnecessarily exposed to x rays. In general, most of this overexposure occurs during fluoroscopy. It occurs because of improper design and use of the fluoroscope and other x-ray equipment. A properly designed fluoroscope will prevent all direct x rays from striking the fluoroscopist and will minimize scattered radiation. By understanding fundamental laws of scattering of x rays, the fluoroscopist can develop a technique which will protect him from damage.

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Icterus in Swine

During 1952, 12,924 hog carcasses worth $500,000 were condemned because of icterus. In a study made by the meat inspection division of the BAI at nine plants, 92 per cent of the 361 hogs retained had developed icterus because their common bile duct was obstructed with ascarids. Few "short-haul" hogs were condemned. Apparently, the long haul and empty gut were contributing factors. There is speculation as to whether the increase in this condition might be due to the substituting of antibiotics in the feed for swine sanitary methods.—*Livestock Conservation News, July, 1953.*

No mastitis cases are harder to handle than those caused by Pseudomonas species; they show little response to drugs.—*R. A. Packer, D.V.M., Ames, Iowa.*

NUTRITION

Vitamin E Deficiency Among Dairy Calves Fed Coconut Meal

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This may be the first report of vitamin E deficiency, commonly known as white muscle disease, among rapidly growing calves on a ration composed partly of coconut meal. Apparently, there was a batch of coconut meal which had become rancid in storage before it was fed to these calves.

It is known that rancid fats are unpalatable and appear to be slightly toxic for some individuals and destructive to other factors in the food such as carotene, vitamin A[3], and vitamin E[4].

After withholding the rest of the coconut meal and putting the animals on other substitutes, no further cases developed. These affected calves were fed a balanced ration and were being grazed on irrigated guinea grass of excellent quality, which should supply adequate vitamin E.

Calf 1 was born Nov. 24, 1951. On Sept. 19, 1952, this calf was showing the following symptoms: tympanitis with a temperature of 102.5 F.; incoördination of the hind limbs, muscular weakness, and stiffness; very pale mucous membranes; constipation; no rumen movements, and loss of appetite.

It was treated symptomatically with stimulants but did not improve and died on September 28.

The musculature of the affected limbs showed whitish streaks of degeneration. Similar changes were found in the musculature of the heart. The lungs were edematous and showed pneumonia-like lesions. There were blood-tinged fluids in the pleural and pericardial cavities. The liver was passively congested.

Calf 2 was a purebred Jersey heifer born June 11, 1952. It appeared to suffer from chronic bloat and anorexia. Its mucous membranes were pale and its temperature 102 F.

It was treated in the same manner as calf 1 but died the following morning.

The postmortem examination confirmed the diagnosis of white muscle disease.

Conclusion

No further cases of white muscle disease have developed among the calves of this herd since the ration has been changed. It, therefore, seems quite possible that the batch of coconut meal which became rancid could have been responsible for the 2 cases of vitamin deficiency mentioned.

However, the validity of this hypothesis can not be assessed until more work is carried out in the form of feeding experiments with rancid coconut meal.

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Thanks to Dr. S. L. Hignett of Burrowes Wellcome Research Station who was in Jamaica at the time and confirmed the diagnosis of vitamin E deficiency by performing the postmortem examination on calf 2; and to the director of agriculture, Jamaica, for permission to publish this report.

A Decrease in Manufactured Feeds

According to the American Feed Manufacturers Association, production of animal feeds in the first half of 1953 was 4 per cent below that of a similar period in 1952. The total output in 1952 was 34.4 million tons. The formula feed industry supplies 27 per cent of the total feed requirements for poultry and livestock, exclusive of pastures and roughage. The greatest drop in production was in the drought-plagued Southwest and South.

Dairy feed production was up 3 per cent, swine feed down 11 per cent, beef and sheep feeds down 22 per cent, and turkey feed down 19 per cent. Of the total tonnage produced, 62 per cent was for poultry, 21 per cent for dairy animals, 8 per cent for swine, 5 per cent for beef cattle and sheep, and 4 per cent miscellaneous.—*The Feed Bag, Aug., 1953.*

Turkeys on an antibiotic ration often seem to have an increased susceptibility to enterohepatitis.—*C. D. Lee, D.V.M., Ames, Iowa.*

EDITORIAL

Another Milestone — An Immunity Test for Erysipelas

Seldom has any disease been referred to so frequently as being "unpredictable" or "variable" as has swine erysipelas.

During the more than twenty years that it has been recognized as a serious disease on this continent, it has been the subject of markedly different opinions. Practitioners and research workers have maintained individual opinions with little possibility of them being proved right or wrong. Observations could be made and theories expounded but basic facts could not be proved because research was stymied by the inability to consistently produce the disease experimentally. Finally, by means of the percutaneous or skin scarification method, first introduced in Germany by Fortner and Dinter, that road block has been removed and an animal's susceptibility or immunity to erysipelas apparently can now be experimentally demonstrated. The practical application of this progressive step is reported by Dr. R. D. Shuman *et al.* in this issue of the JOURNAL (p. 301).

This method has been used experimentally in this country for about four years but not until now have any definite, practical, immunity findings been published. By the use of this method, some who had doubts have been satisfied regarding the primary pathogenic role of *Erysipelothrix rhusiopathiae* in swine.

Perhaps Shuman's articles should be considered as preliminary reports until further verified under different conditions in other sections of the country, since the results may vary just as clinical cases have seemed to vary with the environment. However, his findings so closely parallel some field observations that, basically, they probably will be confirmed.

Undoubtedly, the knowledge of veterinary scientists on this continent, concerning swine erysipelas, was retarded by the last world war. Erysipelas has been recognized as one of the major, if not *the* major, infectious disease of swine in parts of Europe for about seventy years. Research was, therefore, far advanced, especially in Germany, long before the disease became a serious problem in America. The war then cut off European communications and curtailed research there.

Methods for controlling erysipelas which have been adopted from Europe include: passive immunization with swine erysipelas antiserum, first extensively used about 1930; active immunization with virulent culture plus serum, about 1938; treatment with penicillin, in 1947; and now the experimental evaluation of its biological control by the percutaneous method.

Chronologically and briefly, the history of serious acute swine erysipelas in America is about as follows: (a) first reported from the western extremity of the cornbelt in 1930;[1] (b) studies of its peculiarities as a soil-borne infection reported in 1936;[2] (c) field immunization trials with living culture and serum started, with BAI coöperation, in Nebraska in 1938;[3,4] (d) field use of this simultaneous vaccination method, under strict BAI supervision, extended to Illinois, Iowa, and South Dakota by 1941; (e) the baby pig vaccination plan, for use on infected premises, first urged by many sanitary officials about 1942; (f) penicillin found to be more effective than serum as a curative agent in field cases in 1948;[5] (g) and now the percutaneous test, to open new avenues for research.

By this test Shuman (*see* p. 304) has found that (1) the simultaneous vaccination of baby pigs with antiserum and live cultures gives only partial protection which fades rapidly after weaning age (results might have been better had less serum been used in vaccinating the baby pigs); (2) similar vaccination of weaned pigs gives a more solid immunity which apparently protects 50 to 60 per cent of swine to market age (*see* p. 307); and (3) gilts similarly vaccinated at breeding age develop a solid immunity which protects them for four to eight months and their suckling pigs for at least six weeks (*see* Nov., 1953, JOURNAL).

NEW CONCEPTS ON ERYSIPELAS CONTROL

If Shuman's findings hold true, a re-

vised two-step plan for the control of swine erysipelas would seem to be indicated.

Step 1.—Protect their anticipated suckling pigs by vaccinating gilts when of breeding age and revaccinating all retained sows annually. Those used in the experiment (*see* Nov., 1953, JOURNAL) were vaccinated shortly before being bred but perhaps vaccination during the first sixty to ninety days of pregnancy would be just as effective.

Step 2.—Give the pigs the necessary added protection to market age by vaccinating them at about weaning time. This vaccination might safely be further delayed if it follows, by about three weeks, the vaccination of the pigs for hog cholera, provided that antiserum is used and that this vaccination is done before the pigs are weaned.

With this method of testing immunity now available, perhaps other moot questions regarding swine erysipelas can be answered.

Those whose experience indicates that hog cholera antiserum is usually quite effective against erysipelas in swine, either in a temporary prophylactic or a curative capacity, would welcome a test of this serum by the percutaneous method. Also welcomed would be a test of the extent to which penicillin, or other antibiotics, would delay or prevent reactions when administered at, or at periods after, the time of inoculation. Shuman has indicated that recommended quantities of antibiotics in the feed are apparently ineffective.

The test might also be used to differentiate some conditions which are often assumed to be forms of chronic erysipelas. Assuming that an erysipelas infection would prevent a reaction, pigs with suspicious lesions could be considered as "non-erysipelitic" if no reaction occurred, but a failure to react would not necessarily indict *Ery. rhusiopathiae* as the cause of the condition.

Such a test would be of greatest value when used on individuals which had recovered from various baby pig afflictions, since they are the conditions most often confused with erysipelas. Foremost among these are: necrosis and sloughing of tails or ears, moist eczema, and arthritis. The cause of the dermatitis cases remains a question but many of the arthritis cases are probably just navel ill infections. The improbability of erysipelas infection being a factor in such chronic diseases as atrophic rhinitis could also be ascertained.

Since the great majority of acute erysipelas cases can be saved, without visible sequela, by the prompt use of penicillin and antiserum, the urgency for baby pig vaccination has been chiefly to prevent the chronic forms. Now, if what are often considered chronic cases should be proved not to be erysipelas, then the control program might well be reviewed.

How the percutaneous test can be of use in answering questions about the transmissibility or the incidence of field infections remains to be seen but it should open avenues for their investigation. Still to be solved are such problems as: why such explosive outbreaks occur, whether erysipelas is contagious, and what are the influence of soil peculiarities, diet, environment, heredity or other often suspected factors.

There are still hurdles ahead but perhaps we are over the most formidable one.

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Findings from a Swine Erysipelas Questionnaire

In an attempt to learn whether the acute, septicemic type of swine erysipelas followed the same pattern in different communities, the JOURNAL, last April, sent questionnaires to a number of the older practitioners in the major erysipelas area of Iowa, eastern Nebraska, southeastern South Dakota, and southern Minnesota. The results are meager since only 20 were returned and many of them indicated that the replies were based more on recollections than on records.

From the replies the following information is compiled:

Each practitioner reported having diagnosed acute erysipelas in from ten to about 1,000 herds in two to twenty-three years, an average of about 19 herds per veterinarian per year.

Estimated laboratory confirmation of their diagnosis, with two exceptions, ranged

from 0 to 10 per cent, averaging 5.7 per cent for the 4,938 affected herds reported.

Seven of the 20 had recognized acute erysipelas first between 1930 and 1935; 7 others between 1936 and 1942.

Only three had observed the disease frequency and severity as occurring in waves or cycles of several years each, yet 70 per cent reported a decrease in the number of cases from 1950 through 1952 (the average for the 18 reporting being 23 herds in 1950, 18 herds in 1951, and 9 herds in 1952).

The disease was reported by 55 per cent as being most frequent and severe in the years 1948 to 1950, inclusive, while 72 per cent reported it at a minimum in frequency and severity in 1952.

The age of the affected herds was reported as: some of the affected less than 3 weeks old in 16 per cent; pigs 3 weeks to weaning age affected in 22 per cent; pigs weaned but under 4 months old in 28 per cent; and hogs over 4 months old in 34 per cent.

Of the 89 herds reported as "culture breaks", or vaccination immunity failures, 49 per cent had been vaccinated when less than 3 weeks old, 34 per cent when 3 to 6 weeks old, and 17 per cent when older. Of these failures, 31 per cent occurred less than four months after vaccination.

Erysipelas was diagnosed *less than three weeks after* antiserum and virus cholera vaccination in 56 herds, after a modified cholera vaccine without serum in 11 herds, and after a chemically inactivated vaccine in four herds.

The last item need not be interpreted as discrediting the value of hog cholera serum as a short-time erysipelas prophylactic. When 56 cases, 45 of which were on two reports, are distributed over 259 years, the cumulative years in which these 20 practitioners had experience with erysipelas, it means that erysipelas was thus diagnosed on an average of only once in 4.6 years per practitioner, or about once in every 1,000 herds vaccinated. This would be much less frequent than it reportedly occurred following the use of cholera vaccines without serum, when the limited use of the latter in the past is considered. Significantly, the record for the specific erysipelas antiserum is little, if any, better since four reported a total of seven herds in which new cases either continued to appear or an outbreak started within fourteen days after use of the specific serum.

A sudden change of feed was suspected of being a predisposing factor in 122 cases: gorging on a carcass or animal protein in 20 herds; gorging on new corn in 58 herds, and changing to pasture in 44 herds.

Penicillin was the unanimously favorite antibiotic for treating erysipelas, and its use with the serum was the treatment of choice for affected animals by over 60 per cent.

Dr. Harry E. Kingman, Jr., Appointed Assistant Executive Secretary

The Executive Board is pleased to announce the appointment of Dr. Harry E. Kingman, Jr., as assistant executive secretary of the AVMA effective Sept. 1, 1953, to succeed Dr. C. D. Van Houweling who resigned recently and has accepted an instructorship in the College of Veterinary Medicine, University of Illinois, where he will also do graduate work.

Dr. Harry E. Kingman, Jr.

Dr. Kingman comes to the Association from Wilson & Co., Chicago, by whom he was employed since 1940, first as a member of the veterinary division, and, since 1950, as assistant director of research. He has served as treasurer of the AVMA since 1951 and has also been active for several years in other Association work, including chairmanship of the Special Committee on Food and Milk Hygiene.

Born in Fort Collins, Colo., Sept. 4, 1911,

Dr. Kingman received his elementary and high school education there, and his D.V.M. degree from Colorado A. & M. College in 1933. Following graduation, he conducted a mixed practice in Monterey, Calif., until he joined the staff of the U. S. Bureau of Animal Industry in the tuberculosis eradication division in August, 1934. He worked in California in this capacity until November, 1936, when he helped conduct the calfhood vaccination experiment in California until May of 1939. At that time he came to Chicago and worked in the Meat Inspection Division and B.A.I. Pathological Laboratory until joining the staff of Wilson & Co.

Dr. Kingman has been a member of the AVMA since 1933 and a member of the U.S. Livestock Sanitary Association and the Society for Animal Production for many years. He also is a member of the Illinois State Veterinary Medical Association.

In his work with Wilson & Co., Dr. Kingman was in close association with many aspects of the livestock and meat industries, and with allied organizations such as the American Meat Institute and the National Livestock Loss Prevention Board (now reorganized as Livestock Conservation, Inc.). He served on several committees of the Institute on matters relating to animal disease control and is currently a member of its research committee. He was active as an advisor in the reorganization of the National Livestock Loss Prevention Board into its present counterpart. His work also brought him intimate knowledge of federal government departments, especially agriculture; he is a member of the Advisory Committee to the Secretary of Agriculture on vesicular exanthema, representing the American Meat Institute.

Dr. Kingman's wide range of professional experience, his intimate knowledge of governmental activities relating to livestock and meat production, and his broad acquaintance with leaders in agriculture, industry, and government are outstanding qualifications for his new position with the Association. These qualifications, combined with his first-hand knowledge of AVMA activities and operations gained while serving as treasurer, make an excellent background for the duties he has undertaken as a member of the executive staff.

Dr. Kingman and his family reside in Elmhurst, Ill., a suburb of Chicago. He and Mrs. Kingman have one daughter, Kay, age 15. His parents, Dr. and Mrs. H. E. Kingman, Sr., of Wyoming Hereford Ranch, Cheyenne, Wyo., are well known in the veterinary profession.

Resignation of Dr. C. D. Van Houweling

Dr. C. D. Van Houweling, whom Dr. Harry E. Kingman, Jr., has succeeded as assistant executive secretary as announced above, came with the AVMA as director of professional relations on Dec. 1, 1948, and was made assistant executive secretary Sept. 1, 1950. During his five years with the Association he demonstrated those special aptitudes for Association work which resulted in a record of accomplishment that is well known and greatly appreciated by all segments of the veterinary profession.

Outstanding among the many and varied Association activities which Dr. Van Houweling helped to initiate or to develop more fully were much closer relationships with the student chapters and a more intimate integration of their programs with that of the parent organization; a greatly improved organization and coördination of the work of association committees; direction and correlation of the sections in their development of programs for the annual convention, including the use of television demonstrations; expanded relationships with allied organizations such as the American Farm Bureau Federation, the American Feed Manufacturer's Association, the American Meat Institute, and with medical groups such as the American Medical and American Dental associations.

During the past three years, Dr. Van Houweling devoted much time and effort to matters affecting the military status of veterinarians under the doctor draft law and was largely instrumental in seeing to successful conclusion congressional action resulting in inclusion of veterinary officers of the Army, Air Force, and U. S. Public Health Service in the $100 monthly additional pay previously provided only for physicians and dentists in those services.

The list of his interests and activities on behalf of the veterinary profession is too long to name in full here, but it is certain that the abilities and enthusiasm which he brought to his work with the Association will have far-reaching and long-lasting

effects that will benefit the profession greatly in years to come and will be appreciated by all segments of it.

The Executive Board accepted Dr. Van Houweling's resignation with deep regret at the annual meeting in Toronto and adopted a resolution expressing appreciation of his devoted services to the AVMA. The best wishes of his host of friends throughout the country will go with him in whatever field of veterinary medicine he may choose to follow or to which he may be called in the future.

William Wallace Dimock
1880-1953

Dr. William W. Dimock, 73, past-president of the AVMA and former head of the Department of Animal Pathology, College of Agriculture, University of Kentucky, died July 23 at his home in Lexington, Ky., after suffering a heart attack during the previous night.

Dr. Dimock was internationally known for his research work in veterinary medicine. He had been associated with the Department of Animal Pathology since 1919 as a professor and former head of the department; he received a change of assignment March 1, 1950. At the time of his death he held the titles of professor of veterinary science on special assignment and veterinarian emeritus.

Dr. Dimock was born Feb. 20, 1880, in Tolland, Conn., a son of the late Henry Eugene and Ellen M. Clark Dimock. He received a B.S. degree in agriculture from the University of Connecticut in 1901 and a D.V.M. degree from Cornell University in 1905.

He spent the next four years in Cuba at the National Cuba Experiment Station as an investigator on animal diseases and as veterinarian to the national board of health. He was granted an honorary D.V.M degree by the University of Havana in 1908 and, in 1944, was made an honorary professor at that University.

Returning to the United States in 1909 to accept the chair of professor of pathology at Iowa State College, he remained there until coming to the University of Kentucky.

He is author and joint author of 153 publications on animal diseases. His most publicized works are on infections relating to sterility of mares, abortions, and diseases of foals. Before coming to Kentucky he had done a great amount of work on diseases of swine. He also had done considerable work on botulism in domestic animals, Johne's disease of cattle, and parasitic diseases of sheep and horses. He made eight trips to England in his study of equine diseases. After his change of work assignment, livestock men of Kentucky and other states gave a testimonial dinner in his honor.

Dr. William W. Dimock

Dr. Dimock was president of the American Veterinary Medical Association in 1942-1943. He was a member of the American Association for the Advancement of Science, the Kentucky Veterinary Medical Association, the Iowa Veterinary Medical Association, the Kentucky Academy of Science, the U. S. Livestock Sanitary Association, Gamma Alpha, Phi Kappa Phi, Sigma Xi, and the Second Presbyterian church.

He was also a past president of the Kentucky Veterinary Medical Association, and was a "Kentucky colonel". He is listed in "Who's Who in America" and "American Men of Science."

Chiropractors for Animals

The Coffeyville (Kansas) *Journal* recently carried a half-page illustrated article entitled "Chiropractic for Animals has Grown into Research Projects for Students." It tells how a former Coffeyville resident and preveterinary student who is now a student at the Palmer School of Chiropractic at Davenport, Iowa, is spearheading the movement. Chiropractors are reported to be interested at present only "from a research point of view . . . not . . . in interfering in any way with the work of the veterinarian, but rather in coöperating with the veterinarian." They suggest that their time not be divided between man and animal but that a separate field be set up with training in veterinary anatomy, neurology, pathology, and systematology.

Their research discussions apparently included treatment of such obviously *responsive* [?] diseases as blackleg, hog cholera, tuberculosis, and anthrax. However, the case histories studied where "adjustments" had been made on cattle, dogs, and a pig included less hopeless conditions ranging from foot rot, shipping fever, lumpy jaw, and acute indigestion to an abscessed hind leg, inability to walk, and urinary trouble, with improvement or complete recovery reported in all but 2 of these animals.

Chiropractic, according to Dorland, attempts to restore normal function by manipulation of the human body, especially the spinal column. The adjustments are said to affect nerves which are functioning abnormally. Could it be a nerve responsible for the persons particular brand of psychology? And could they expect a similar response from our somewhat less psychic "dumb" animals?

The idea of correcting "inability to walk" is intriguing. Brood sows suffer from such ailments more often than any other type of patient, and wouldn't it be noisy fun making adjustments on an uncoöperative sow?

Or should we start worrying?

The International F.A.O. reports that 85 per cent of all draft power used in farming is still provided by animals.

1952-1953 Research Fund Drive Hits $38,000

Starting with the $3,914 contributed as a result of the official "kick-off" of the year-long campaign which commenced at the Eighty-Ninth Annual Meeting in Atlantic City, the contributions to the AVMA Research Fund had grown to $38,581.89, as of Aug. 17, 1953.

The bulk of the money contributed has come directly or indirectly from a mail campaign originating from the central office. In addition to this particular activity, state and local associations were urged to conduct fund-raising activities at their regular and annual meetings. A number of women's auxiliaries have also helped by either contributing from their treasuries or by cooperating with their respective local or state associations in special fund-raising activities.

Commercial Companies have contributed a total of more than $5,000.

Future fund-raising plans outlined in a report by the Research Fund-Raising Committee, and presented to the Executive Board and House of Representatives at the Ninetieth Annual Meeting in Toronto, call for solicitation of contributions on an annual basis during a designated period. This probably will not take place before 1955.

It is believed that an annual campaign will do more to perpetuate the fund, rather than to allow it to become almost depleted and then attempt to replenish every five or six years.

More Cattle in Feedlots.—The number of cattle on feed in the 11 cornbelt states on July 1, 1953, was about 8 per cent larger than a year ago and the largest for any postwar year. The number is up 24 per cent in Nebraska and 20 per cent in Ohio. However, in Colorado it is down 25 to 30 per cent.—*The Cattleman, Aug., 1953.*

More acute outbreaks of pullorum disease are identified among adult flocks in Massachusetts today than are encountered in young chicks.—*Henry Van Roekel, D.V.M., Amherst, Mass.*

Pullorum reactors in the 13 northeastern states averaged 10.4 per cent twenty-five years ago against 0.08 per cent now.—*Henry Van Roekel, D.V.M., Amherst, Mass.*

CURRENT LITERATURE

ABSTRACTS

Detection of Agglutinins for Vibrio Fetus

Antigen for the detection of *Vibrio fetus* agglutinins may be prepared by growing the organism on a modified Huntoon "hormone" medium, either in the form of agar or broth. There has been little difficulty in obtaining satisfactory growth with either liquid or solid mediums, but inasmuch as *V. fetus* retains its normal morphology and motility longer in the fluid medium, it is preferred. In either case, 10 per cent of horse serum is added and the CO_2 concentration of the atmosphere increased to 15 per cent. The broth is distributed in 50-ml. quantities in 16-oz. prescription bottles which are incubated on the side so that the depth of the medium is approximately 6 mm. In preparing the suspension, the cells are washed once in 0.85 per cent salt solution to which 0.3 per cent formalin has been added, and resuspended in formalized saline. For antigen production, strains should be selected in which the short spirillar forms and motility can be maintained. The serological type should also be considered when selecting strains.—[*B. D. Firehammer and H. Marsh: Preparation of Antigen for Detection of Agglutinins for Vibrio Fetus. Am. J. Vet. Res., 14, (July, 1953): 392-395.*]

Natural Transmission of Tumor Agents Through the Egg

The relationship of the egg to the natural transmission of a Rous-like agent and the lymphomatosis (L) agent(s) was studied through exposure at the time of hatching and brooding of chicks from relatively tumor-free sources to chicks from heavily tumor-contaminated populations. Eggs were selected from similar avian populations and the chicks hatched separately and raised in isolation. Evidence of the transmission of a Rous-like agent was based on the demonstration of Rous neutralizing antibodies (RNA) in serums from the populations studied. The transmission of L was based on the presence of typical macroscopic and/or microscopic neoplastic tissue changes. The following observations were made: (1) prevalence of L increased from 3.8 per cent in the controls to 29.3 per cent in the exposed chickens; (2) exposed chickens from the same relatively tumor-free source the next year experienced 40.5 per cent L as compared to none in the controls; (3) RNA were observed in 91 per cent of the serums of the exposed chickens as compared to none in the isolated control sibs; (4) when eggs selected from a flock with 8 per cent L were hatched and raised in strict isolation only 1 per cent L appeared within fifteen months, and (5) when eggs selected from a flock with 37 per cent L were hatched separately and the chickens raised in strict isolation 36.8 per cent died of this disease in thirteen months.—[*S. G. Kenzy: Studies in Avian Neoplasia. IV. Natural Transmission of Tumor Agents Through the Egg. Am. J. Vet. Res., 14, (July, 1953): 455-457.*]

Antigenic Forms of Salmonella Pullorum. II

A new nonserological method for differentiating standard, variant, and intermediate antigenic types of *Salmonella pullorum* is presented and discussed. The method is based on the relative sedimenting effect of ammonium sulfate ($(NH_4)_2\ SO_4$) on the various antigenic forms of the organism. An aqueous solution of ($(NH_4)_2\ SO_4$) containing 330 Gm. of the salt per liter clears standard type suspensions following a short period of incubation and centrifugation, has little effect on the turbidity of variant type suspensions, and only partially clears intermediate type suspensions. Results obtained by this technique were found in close agreement with serological typing results. The examination of 60 *Salmonella gallinarum* cultures using the microscopic ammonium sulfate sedimentation test did not reveal the presence of variant type cells in any of the cultures.—[*J. E. Williams: Antigenic Studies Using Ammonium Sulfate. II. The Macroscopic Ammonium Sulfate Sedimentation Test for Distinguishing the Antigenic Forms of Salmonella Pullorum. Am. J. Vet. Res., 14, (July, 1953): 465-470.*]

Ruminant Ketosis

This is a review stressing the relationship between rumen fermentation and ketosis. The known catabolic pathways of carbohydrates, fats, short-chain fatty acids, and amino acids are summarized. A critical discussion of experimental studies of the fate of carbohydrate in the rumen, the relative proportions of the short-chain fatty acids produced, and their metabolism by the ruminant is presented.

It is concluded that ketosis is a result of a glucose deficiency, which results in a derangement of the processes of energy procurement due to a lack of the oxaloacetate necessary for the proper functioning of the citric acid cycle. The suggestion is made that, although the cause of the inability of the ketotic animal to respond to the stress of a lack of glucose is unknown, the disorder may be prevented and cured by supplying adequate amounts of glucose precursors which escape destruction in the rumen. In addition to glycerol, tripropionin, sodium propionate, and

ammonium lactate, which have been used, the use of propylene glycol is proposed. The ultimate solution to the problem of ketosis may be in finding means of controlling rumen fermentation. —[*Robert B. Johnson: A Theoretical Discussion of Ruminant Ketosis. Am. J. Vet. Res. 14, (July 1953): 366-375.*]

Antigenic Types of Salmonella Pullorum. I

A previously undescribed fundamental difference of a nonserological nature which was found to exist in the various antigenic types of *Salmonella pullorum* is discussed. The relative susceptibility of the different antigenic forms of the organism to the flocculating and sedimenting effects of certain concentrations of ammonium sulfate ($(NH_4)_2SO_4$) was correlated with the relative balance of XII_2 and XII_3 type cells in the cultures. Suspensions of standard (XII_2), variant (XII_3), and intermediate (XII_2 - XII_3) antigenic forms of *S. pullorum* were exposed to varying concentrations of ammonium sulfate, incubated for a short time and centrifuged. It was found that a concentration of ammonium sulfate approximating 310 Gm. per liter completely cleared the supernatant fluids of standard type suspensions, had little or no effect on variant suspensions, and only partially cleared intermediate suspensions. A concentration of the salt approximating 470 Gm. per liter was required to clear suspensions of variant and intermediate type cultures.—[*J. E. Williams: Antigenic Studies Using Ammonium Sulfate. I. The Relative Sedimentation Effect of Ammonium Sulfate on the Various Antigenic Types of Salmonella Pullorum. Am. J. Vet. Res., 14, (July, 1953): 458-464.*]

Glands of the Canine Skin

Various skin sections from more than 50 dogs were fixed in Helly's fluid. Demonstration of sweat was done by dusting the dry shaved skin with pulverized iodine and starch. It was found that dogs are capable of sweating and that they have two different types of sweat glands: (*a*) the large, loosely coiled apocrine sweat glands distributed over the entire skin as an appendix to the hair follicles; (*b*) the small, densely coiled merocrine sweat glands present only in the thick fatty fibrous tissue under the footpads. The hairless, heavily pigmented skin on the tip of the nose was found to be without sweat glands. The moisture usually found here is probably from the glands of the mucous membranes of the nostrils. The ear canal is lined with sebaceous and ceruminous glands, the latter being of an apocrine type similar to the large sweat glands of the skin. The perianal glands consist of cords of solid lobules subjacent to a layer of sebaceous glands. They appear to be nonfunctional and are considered abortive attempts to form sebaceous glands. The anal sac is merely an invagination of the skin, into which sebaceous and apocrine glands secrete.—[*S. W. Nielsen: Glands of the Canine Skin—Morphology and Distribution. Am. J. Vet. Res., 14, (July, 1953): 448-454.*]

Experimental Vesicular Stomatitis of Swine

The pathological changes in experimental vesicular stomatitis in swine were studied, using the New Jersey strain of virus isolated from the 1949 outbreak in Wisconsin. Clinical signs and gross pathological findings did not reveal the difference between this and other vesicular diseases. Histological changes, spongiosis, and vesiculation, were similar to those of foot-and-mouth disease. On the basis of clinical and pathological studies, experimental vesicular stomatitis of swine could not be differentiated from foot-and-mouth disease and vesicular exanthema.—[*T. L. Chow and S. H. McNutt: Pathological Changes of Experimental Vesicular Stomatitis of Swine. Am. J. Vet. Res., 14, (July, 1953): 420-424.*]

FOREIGN LITERATURE

Macroagglutination Test for Leptospirosis

Mono- and polyvalent antigens were prepared from three strains of Leptospira, cryptically designated I, II, and icterohemorrhagic. Cultures in Uhlenhuth's medium were killed with formalin, and the dead organisms were collected on membranous filters. The turbidity of the finished antigen was equal to that of 2 billion bacteria per cubic centimeter. From 1 liter of culture containing 100 to 150 Leptospira organisms per field, about 15 to 20 cc. of antigen was obtained.

Tube and plate macroagglutination was compared with the microagglutination-lysis test on 256 serum samples from horses, cattle, and swine. The macroagglutination titer was about 100 times lower than the microagglutination-lysis titer. The lowest titer considered positive was 1:10 by macroagglutination and 1:800 to 1:1000 by microagglutination-lysis. The antigen was stable for one year.—[*L. S. Novikova, Central Laboratory for Fur Animal Research: The Macroagglutination Reaction with Killed Antigens for the Diagnosis of Leptospirosis. Veterinariya (Moscow), 30, (Feb., 1953): 52-56.*]—R. E. H.

BOOKS AND REPORTS

Chinchilla Diseases and Ailments

With the rapid growth of the chinchilla industry, it would be wise for practicing veterinarians to acquaint themselves with diseases and ailments which are peculiar to the chinchilla and with manifestations of diseases which are common to them and to other species. Already familiar with the anatomy, physiology, and pathology of the vertebrate animals, veterinary practitioners who have had but little chinchilla practice need a text which will enable them to apply their present

knowledge to the specific ailments of the species *Chinchilla laniger*.

The style of the book is crisp and direct; however, repetition is encountered in the matter of saying one thing in two or three different ways. The book is obviously designed for lay readers, and this repetition is, therefore, excusable because its intention is to make the exact meaning clear to any reader.

The book comprises 19 major sections and advises on how to watch for diseases on a chinchilla ranch, the importance of sanitation, handling and administering of drugs, and preparing of specimens for submittal to a laboratory. Other sections deal with the relationship of nutrition to disease, and then follow a vast number of specific afflictions which are known to have occurred in the chinchilla. These are dealt with under section heads referring to the organ or portion of the body which is normally the seat of the primary infection. Each affliction is described under a general heading; the symptoms are then detailed and are followed by observations on postmortem findings. Treatment for the ailment is then spelled out, and at times alternative treatments are outlined. The volume of information may well be too much for the average breeder to absorb, but it would undoubtedly be a valuable reference for any veterinarian.

The author is head of the Department of Furbearing Animals, Ontario Veterinary College, Guelph.—[*Chinchilla Diseases and Ailments. A. H. Kennedy. 259 pages. Illustrated. The Fur Trade Journal of Canada, 555 Mt. Pleasant Road, Ottawa, Ont. 1952. Price $6.00.*]—H. H. PELOT.

Veterinary Notes for the Standardbred Breeder

This pocket-size book compiled from articles in "Hoof Beats" as written for breeders of Standardbred horses discusses the problems of equine reproduction peculiar to that breed in an interesting and authentic manner. It should be readily understood by laymen, yet contains much information and practical advice of interest and of value to all veterinarians regardless of their special field of endeavor.

The discussion of broodmare problems is divided into those of the maiden mare, the barren mare, and the foaling mare. The problems dsicussed include recognizing estrus, breeding, pregnancy determination, foaling, and the care of foals. Also included are discussions of some pathological problems including genital infections, abortions, dystocias, and common diseases of foals with advice regarding their detection and first aid treatment until the veterinarian arrives.—[*Veterinary Notes for the Standardbred Breeder. By William R. McGee, D.V.M. 72 pages. Illustrated. The U. S. Trotting Assn., 1349 E. Broad St., Columbus 5, Ohio. Price not given.*]—W. A. AITKEN.

Veterinary Dermatology

This book is the first complete text in the English language on the subject of veterinary dermatology. The material is authoritative, covers the field thoroughly, and is logically presented. The content reflects not only the extensive clinical background of the senior author but his linguistic knowledge as well. The references are worldwide in origin and the bibliography extensive and complete. At the end of each section is a list of key references pertaining to its subject matter.

The book is divided into 21 sections and a glance at the section headings listed below reveals something of the nature of the content and its orderly presentation.

1) Basic Survey
2) Examination of the Skin
3) Causes and Classification of Skin Disorders
4) Skin Inflammations, Dermatitis
5) Eczema
6) Otitis Externa in Dogs
7) Urticaria
8) Drug Eruptions
9) Food Rashes
10) Photosensitization
11) Hypertrophic Changes of the Skin
12) Skin Tumors
13) Functional Diseases of the Skin
14) Gangrene of the Skin
15) Skin Manifestations in the Course of Infectious Diseases Caused by Viruses
16) Skin Manifestations in the Course of Infectious Diseases Caused by Bacteria
17) Skin Manifestations Caused by Fungi
18) Skin Manifestations in the Course of Infectious Diseases Caused by Protozoa
19) Dermatoses Associated with Helminths
20) Acarine Dermatoses Associated with Ticks and Mites
21) Dermatoses Caused by Insects

Appendix

Beginning with section 4, the diseases and lesions of the skin are discussed in every essential detail—etiology, pathology, symptomatology, diagnosis, prognosis, and treatment. One is impressed with the therapeutic soundness of treatments suggested throughout the text. Many of the therapeutic measures suggested have been in use for many years but the more recent of our therapeutic agents, antihistamines, antibiotics, et cetera, find their rightful place in the discussions.

Both authors are successful investigators and teachers in their respective fields. Both understand the needs of the student and teacher. The senior author is familiar with the problems of the clinician. Their combined talents and experiences have enabled them to bring together all material pertinent to the subject of animal dermatology into one volume. Effective use has been made of 124 exceptional illustrations.

The publishers are to be complimented for their contribution to the effectiveness of this publication. The type is ideal and the paper of top

quality. The finished product is a well-bound book of convenient size.

This book is readable and practical. It will be useful for student, teacher, investigator, and clinician.—[*Veterinary Dermatology. Frank Kral and Benjamin J. Novak. 311 pages. Illustrated. J. B. Lippincott Co., East Washington Square, Philadelphia 5, Pa. 1953. Price $10.00.*]—C. H. COVAULT.

Business Practices in Veterinary Medicine

This book, as indicated in the preface, was written to assist both veterinary students and practitioners to become better businessmen.

The aim has been (1) to gather into a single volume the basic business principles needed by all veterinary students and practitioners; (2) to describe these business principles in a nontechnical and interesting style; (3) to indicate how the facts presented might be utilized by the practical reader; and (4) to present only that which would assist in building a successful practice.

This was a much needed book. With some revision it should be of value to those who read it and apply certain aspects pertaining to their own practice.

Salient points are stressed. To the recent graduate some of these may appear to be of no importance; however, to one who has followed veterinary medicine as a profession they are accepted as being important for a successful practice.

One chapter, dealing with protection, graphically outlines the necessity for insurance protection. All types of insurance are mentioned. It is true that certain types of insurance are necessary but it is also true that it is easy to become insurance poor.

The reviewer does not agree with the author on the practitioner and student-helper relation. The point in question is that the student slows down the practitioner and does not increase the financial gain. Most students are eager to learn, and with a little organization and instruction, which is necessary in any profession, the student is soon doing small jobs, saving countless steps, and making work easier and faster for the veterinarian.

On finance, the advice on loans and amounts of money necessary to start a practice is good. Following this is an outlined description of organization and layout of an animal hospital. It may be wise to be a little conservative and not too elaborate since a hospital can be enlarged as the practice develops. Often this does not happen along anticipated lines, and original plans will need to be changed.

The book seems to be written for the small animal practitioner and shows a lack of appreciation of problems of large animal practice although about 50 per cent of our profession is so engaged. Such instances as, page 7 line 12, "At places under 2,500 incomes drop sharply," are not always true because many of our top large animal practitioners are located in small towns. Also, the statements on page 8, "Failure causes, lack of capital," and on page 19, "Money is the life blood of a practice," are placing the money issue above service, for service must be considered before money can be collected.

Inventory and stock records are given a great deal of consideration. This can not be overemphasized. It is a sad situation to have a good practice and end up with no money in the bank after the drug bills are paid.

That portion of the book devoted to legal aspects is very good. Here is a reference that may save the practitioner many headaches.

The most valuable part of the book is that which deals with building a clientele. Many good good ideas are brought out here which are often overlooked.

The authors have spent a lot of time and study in assembling material. It is a good beginning but more consideration should be given to rendering good service rather than to collecting fees.—[*Business Practices in Veterinary Medicine. K. B. Haas, Sr. and K. B. Haas, Jr. 317 pages. Illustrated. Veterinary Magazine Corp., Kansas City, Mo. 1953. Price not given.*]—E. F. EBERT.

Mental Diseases in Man and Animals

The first chapter of this book discusses the historical development of psychiatry in man. Later, the beginning of animal psychology as studied in the fields of human and veterinary medicine, by animal psychologists and by zoölogists and physiologists is discussed. For research in comparative psychopathology, the most important rules to follow are: comparative anatomical and pathological anatomical conditions, the biochemical, electrophysiological, and experimental research on animals. Not less important is research in psychiatric heredity.

In the second chapter, devoted to the general psychopathology, the centripetal functions and their disorders and the affectivity and its pathology is discussed in man and animals; the centrifugal functions and their disorders are described in man and to some extent in animals, particularly with regard to kinetic disorders (hyperkinesia, hypokinesia, akinesia, dyskinesia), kataonia, hypnosis, automutilation, suicide, coprophagy, and others.

The third chapter of the book is concerned with the special psychopathology: psychic disorders of congenital origin, disorders occurring from mechanical damage to brain tissue, developing in the course of brain disorders caused by infections (rabies, nervous distemper, paralytic dementia), in course of intoxications, tumors, epilepsy, etc.

A special chapter is devoted to neurasthenia, hysteria, phobias, sexual disorders, foul habits of animals, and schizophrenia.

This interesting book is well supplemented with instructive illustrations and may serve as a guide in both human and veterinary medicine.—[*Seelische Erkrankungen Bei Mensch Und Tier.*

(Mental Diseases in Humans and Animals). By Prof. Dr. Med. E. Frauchiger. 2nd ed. 37 illustrations. 277 pages. Grune and Stratton, Inc., 381 Fourth Avenue, New York, N. Y. Price $5.00 to $8.00.]—F. KRAL.

Immunity-Hypersensitivity-Serology

In the words of the author, the purpose of this book is "to describe the phenomenon of immunity in basic terms, especially with regard to resistance to bacteria, viruses and toxins." It is difficult, after reading this excellent piece of work, to escape the fact that this aim has been achieved, and in a manner indicative of an easy familiarity on the part of the author with his subject.

This is a book which considers immunity from the point of view of its broad biological principles rather than from the aspect of immunochemistry. It is, therefore, materially more than a consideration of antibodies. To quote from the preface, "a book about serology can be written with antibody as the stellar and practically the sole performer, but not a book concerned with immunity." This attitude is reflected throughout.

The book is divided into four sections, the first of which deals with the fundamentals of immunity. In a systematic manner the writer begins with a consideration of parasitism and the various mechanisms of the body responsible for native immunity. The attributes of an agent which make it pathogenic and the virulence of bacteria are considered in the next two chapters. Seven chapters are devoted to the consideration of acquired immunity. These deal principally with antibodies, their origin, nature, chemistry, and possible *modus operandi* in antigen-antibody reactions, both as serological phenomena and as a protective mechanism in the living body. In addition, nonantibody humoral factors, cellular and tissue factors, and inflammation are discussed with respect to their protective roles. The final chapter of the section deals with the influence on immunity of factors such as nutrition, physical activity, irradiation, drugs, and chemical substances.

Section two is concerned with hypersensitivity. One chapter is devoted to a consideration of the immediate type and another chapter discusses the delayed type. The relationship of hypersensitivity to immunity is next considered, the opinion of the author on this point being that hypersensitivity, rather than serving as a mechanism of resistance is actually a liability in view of the tissue damage which results. Allergies caused by drugs and food and those due to physical factors such as heat and cold are dealt with in the fourth chapter. In this section, the author reviews and critically analyzes the current theories regarding the possible mechanism of anaphylactic shock and the various manifestations of hypersensitivity. The classical phenomena of Arthus, Shwartzman, Prausnitz-Kustner, and others are ably described.

Section three deals with the mechanism of resistance in various infectious diseases. The author considers three possible mechanisms which may operate in acquired immunity. He then proceeds to illustrate each, using one or more appropriate diseases of bacterial, toxic, and viral etiology for this purpose. It is interesting to note that of the 12 diseases discussed, only bacterial pneumonia readily fits the virulence-antivirulence concept in which immunity is attributed exclusively to the protective effects of specific antibody. No definite conclusions are drawn regarding the mechanism functioning in immunity in the other diseases discussed, although the author indulges in some interesting speculations in this connection.

Section four is entitled "Serology and Antigenic Systems" and consists of three chapters. The first deals with the important antigens of the gram-negative and gram-positive bacteria. A discussion of antigenic variation is included in which the author describes the phase variation of the Salmonella organisms. A portion of the chapter is concerned with a consideration of toxins of bacterial and animal origin. The second chapter, long and somewhat involved, pertains to the antigens of body tissues and cells with respect to their possible role in noninfectious conditions and pathological states resulting from iso- and autoimmunization. The final chapter considers the antigenic systems of the blood cells of man and, to a limited extent, the lower animals.

In summary, this textbook is well written, the subject matter is presented in an organized fashion, and its scope is sufficiently broad to give adequate coverage of the field. A desirable feature is the summary at the end of most chapters. The extensive bibliography makes it valuable as a reference source. The illustrations are few but effective.

In the opinion of the reviewer, this book is excellent for the teacher and the graduate student, and he heartily endorses it as a valuable contribution in the field of immunology.—[*Immunity-Hypersensitivity-Serology. By Sidney Raffel, Sc.D., M.D. 531 pages. Illustrated. Appleton-Century Crofts, Inc., New York, N. Y. Price not given.*] — D. G. McKERCHER.

REVIEWS OF VETERINARY MEDICAL FILMS

The following motion picture films are available for limited distribution through the coöperation of the U.S. Department of Agriculture and the Federal Civil Defense Administration. They can be obtained for showing at veterinary colleges and veterinary meetings from: Motion Picture Service, U.S.D.A., Washington 25, D.C.; the American Veterinary Medical Association, 600 S. Michigan Ave., Chicago 5, Ill.; and the Health and Special Weapons Defense Office, Federal Civil Defense Administration, Washington 25, D.C.

These motion pictures are several in a series being acquired and developed by the U.S.D.A. and F.C.D.A. to help provide visual training materials for veterinary practitioners, veterinary students, and diagnosticians of foreign or unusual animal diseases that would, if introduced into the United

States, cause losses of livestock and increased or additional problems in animal disease control. With the possibility of biological warfare attacks against our domestic animals and the ever-present threat of accidental introduction of foreign animal diseases by rapid intercontinental air transport, all veterinarians must become well acquainted with the characteristics of these diseases. These pictures are designed for teaching purposes, showing the epizoötiology of the diseases, including the insect vectors involved and the importance of breaking the host-parasite link for the control of the disease.

Nagana—African Trypanosomiasis of Animals, Transmitted by Tsetse Flies.—Sound, color, 16 mm., running time twenty minutes.

Nagana is an acute or chronic infectious disease of domestic animals, characterized by anemia, loss of condition, lack of energy, remittent fever, and edema. It can be caused by one or more Trypanosoma sp.: *Trypanosoma congolense, Trypanosoma brucei, Trypanosoma vivax*. The disease is spread by the tsetse fly which is the true host of these parasites.

This film shows the distribution of the disease in Africa. It describes and shows the symptoms, the means of diagnosis, and the control measures. The life cycle of the tsetse fly is shown with excellent close-up and magnified shots of the several stages of development. Methods for controlling the fly and the disease include surveys, reduction of wild game, eradicating fly-breeding areas, the use of insecticides used by aircraft and dipping solutions for animals.

This is an excellent picture for teaching purposes in courses of infectious diseases and parasitology. The photography is outstanding and quite detailed.

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Heartwater in Farm Animals (Rickettsia Ruminantium Infection).—Sound, color, 16 mm., running time fifteen minutes.

Heartwater is a septicemic, infectious, noncontagious disease of sheep, goats, and cattle, characterized by a high fever and nervous symptoms. In sheep and goats, hydropericardium is the most common lesion; this is not always true in cattle. The causative agent is *Rickettsia ruminantium* and the vector is the bont tick.

This film shows the distribution of the disease, the symptoms, means of diagnosis, methods of spread, and measures for control. The life cycle of the tick is shown with the living insect by means of magnification. It is a good film for teaching purposes.

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East Coast Fever (Theileria Parva Infection in Cattle).—Sound, color, 16 mm., running time twenty minutes.

East coast fever is a virulent and highly fatal protozoal disease of cattle (theileriosis), characterized by focal hyperplasia of the lymphatic tissues. The causative agent is *Theileria parva* and the vector is the tick.

This film which gives the history and distribution of the disease also shows the means of transmission (tick), the symptoms and pathology, the methods of diagnosis, and measures for control. The life cycle of the tick involved in transmission of the disease is well depicted. It is a good film for teaching purposes.

• • •

Foot-and-Mouth Disease in South Africa.—Sound, color, 16 mm., running time fifteen minutes.

This film briefly describes the disease in South Africa and the methods used there in handling it. There are some good close-up shots of lesions of the mouth and feet and the resultant symptoms. The problem of the disease in wild animals is discussed. The film shows the pathology of the disease very well.

• • •

Teschen Disease.—Sound, black and white, 16 mm., running time twelve minutes.

The symptomatology contrasts with hog cholera and nutritional deficiency. The film was reviewed in the June, 1953, issue of the JOURNAL and can be obtained from the above sources as well as the following film libraries coöperating with the U.S.D.A.

California—Berkeley 4, Extension Division, University of California.
Indiana—LaFayette, Purdue Film Library, Purdue University.
Iowa—Ames, Visual Instruction Service, Iowa State College.
Kansas—Manhattan, Agricultural Extension Service, Kansas State College.
Massachusetts—Amherst, Audio-Visual Center, South College, University of Massachusetts.
Michigan—East Lansing, Audio-Visual Center, Michigan State College.
Minnesota—St. Paul 8, Institute of Agriculture, University of Minnesota Farm.
Missouri—Columbia, Visual Education Department, University of Missouri, 23 Jesse Hall.
Nebraska—Lincoln 8, Bureau of Audio-Visual Aids, University of Nebraska.
New Jersey—Trenton 7, New Jersey State Museum, State Department of Education, State House Annex.
Wisconsin—Madison 6, Bureau of Visual Instruction, University of Wisconsin.

The film may also be obtained from the following regional film libraries serving the areas as indicated:

Colorado—Fort Collins, Agricultural Extension Service, Colorado A. & M. College (Rockies and Far West).
Georgia—Athens, Georgia Agricultural Extension Service (Southeast).
Illinois—Champaign, Visual Aids Service, University of Illinois, 713½ South Wright Street (Middlewest).
New York—Ithaca, Agricultural Extension Service, College of Agriculture, Cornell University (Northeast).
South Dakota—Brookings, Agricultural Extension Service, South Dakota State College (the Plains States)

THE NEWS

Legislation of Interest to the Profession

A number of bills introduced in the first session of the 83rd Congress are, it is believed, directly or indirectly of interest to members of the veterinary profession working in several of the fields of veterinary medicine. Some of these bills have passed the House and Senate and have been approved by the President, thus becoming public laws; action on others await the next or second session; in fact, hearings on some of the bills by House and Senate committees have not been held.

The following is a list of some of the public laws enacted during the first session of the 83rd Congress, with a summary of each Act, that may be of interest.

P.L. 84 (commonly referred to as the doctor draft law) is an Act amending the Universal Military Training and Service Act, as amended (*see* August JOURNAL: p. 151, for details).

An important provision of P.L. 84 is Section 8, which amends Section 203 of the Career Compensation Act of 1949, as amended, because it continues the $100-a-month equalization pay for physicians and dentists (except interns) while on active duty, and *included, for the first time, veterinarians.*

P. L. 108 establishes a 12-man commission to study and investigate the present organization and methods of operation of all government departments, agencies, bureaus, etc., except the Judiciary and the Congress, to determine what changes are necessary, in their opinion, to promote economy, efficiency, and improved service. The commission may submit interim reports but must submit its final report not later than May 31, 1955.

P. L. 109 establishes a commission of 25 members, known as the Commission on Intergovernmental Relations. This Commission will study and investigate *all present activities* in which federal aid is extended to state and local governments. Its determination and report will include justification for federal aid in various fields, whether there are other fields in which federal aid should be extended, whether federal control with respect to these activities should be limited, whether federal aid should be limited to cases of need, etc. This commission, not later than March 1, 1954, must submit its final report to the President for transmittal to the Congress, including recommendations for legislative action.

P. L. 201 changes the name of aureomycin to chlortetracycline. This law paves the way for registration of the former title by one of the drug firms.

P. L. 217 amends Section 704 of the Federal Food, Drug and Cosmetic Act, as amended, and permits food and drug agents to inspect factories and other establishments in which food, drugs, devices, or cosmetics are manufactured, processed, packed, or held for introduction into interstate commerce or held after such introduction after appropriate credentials and a written notice are presented. The agent must, prior to leaving the premises, give a report of any adverse finding to the owner, operator, or agent; also, he must give a receipt for any samples taken from the premises. The results of any analysis made of samples taken must be furnished to the establishment.

P. L. 226 is an Act in which Congress grants its consent to certain western states and the territories of Alaska and Hawaii to enter into a compact relating to higher education in the western states and establishing the Western Interstate Commission for Higher Education.

The states and territories concerned are: Arizona, California, Colorado, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, Wyoming, Alaska, and Hawaii. Any five may enter into a compact and agreement, setting up a commission whose duty will be to enter into contractual arrangements with educational institutions in the region, offering graduate or professional education, to provide such education for citizens of the compacting states. The law states the first endeavor of the Com-

(Continued on page 363)

This report was prepared by President J. A. McCallam, Washington representative of the AVMA.

News From Washington

The AVMA has directed communications to both the Attorney General and the Secretary of the Treasury urging that all parties involved in the smuggling of 64 Charolaise cattle from Mexico to Louisiana receive the maximum penalties of the federal and state laws involved.

These animals, appraised at $1,008,250, have been placed under customs seizure at Lafayette, La., and are being held under strict quarantine by state and federal forces.

Permission to import these animals from Mexico had been denied by the Inspection and Quarantine Division of the Bureau of Animal Industry and they were subsequently smuggled across the border.

The AVMA pointed out to the Treasury and Justice departments that the illegal entry of livestock into this country constitutes a most serious threat to our livestock population.

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Special attention will be given to bills introduced in Congress but which have not been acted upon:

(1) bills (H. R. 2724, H. R. 3160 and S. 932) pertaining to initial appointment of veterinarians as 1st lieutenants. H. R. 6812 would extend social security coverage to approximately 10 million additional persons. Veterinarians would be required to participate if they earn $400 or more a year. This in effect would make it mandatory for self-employed professional persons. The president of the AVMA and some others believe the mandatory requirement, in so far as it affects the self-employed professional person, is objectionable.

Should H. R. 10, an entirely different bill, be enacted as written, the self-employed veterinarian could establish his own voluntary pension plan (**see** Sept., 1953, JOURNAL, p. 253). The views of the readers of this column would be appreciated relative to the position the AVMA should take with regard to this proposed legislation.

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The department of Agriculture has just announced that Norway is declared to be free from foot-and-mouth disease and that the present prohibition upon importation of livestock or livestock products from that country has been lifted.

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Two minor changes have been made in the vesicular exanthema regulations pertaining to the cleaning and disinfection of railroad cars used to transport swine, and the movement of swine certified to having been fed only cooked garbage.

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Information received as of Sept. 8, 1953, indicates **neither the Army nor the Air Force believe it will be necessary to place any immediate calls with selective service for veterinarians** under authority of the doctor draft law or to order any veterinary reserve officer in Priority I to active duty in the near future. As such calls are normally placed with Selective Service four months in advance of the date replacements are required, it would appear that a veterinarian subject **only** to the doctor draft law (P. L. 84) should not expect an involuntary call for active military duty at least before February, 1954. The above statement **does not** apply to those veterinarians who are also subject to Section 3, Universal Military Training and Service Act, as amended (regular draft to meet the requirements for enlisted personnel for the Department of Defense).

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Late in August, there were unconfirmed reports of an outbreak of equine encephalomyelitis in the provinces of Saskatchewan and Manitoba. When official confirmation and other information is available, details pertinent to the outbreak will be furnished.

(Continued from page 361)

mission is to provide adequate services and facilities in the fields of medicine, dentistry, public health, and veterinary medicine.

The commission will consist of three residents from each compacting state or territory. The operating costs of the commission are to be apportioned equally among the compacting states and territories.

P. L. 227 amends Section 11 of the Act of Congress of May 29, 1884, as amended. That Act initially established the Bureau of Animal Industry. Section 11 thereof pertains to animal disease control, and the latest amendment (P.L. 227) adds "scrapie and bluetongue in sheep, incipient or potentially serious minor outbreaks of diseases of animals" to the list of diseases which the Secretary of Agriculture is authorized to control and eradicate when, in his opinion, an emergency exists and threatens the livestock industry of the country.

P.L. 240 amends certain sections of the Internal Revenue Code and the Narcotic Drugs Import and Export Act to provide that certain chemically synthesized drugs shall be included within the classification of narcotic drugs. This law broadens the definition of "narcotic" drugs to include any of the following, whether produced directly or indirectly by extraction from substances of vegetable origin, or independently by chemical synthesis, or by a combination of extraction and chemical synthesis: (1) opium, isonipecaine, coca leaves, and opiate; (2) any compound, manufacture, salt, derivative, or opiate; (3) any substance which is chemically identical with any of the substances referred to in (1) and (2) above.

SOME LEGISLATION PENDING

Bills introduced during the first session of the 83rd Congress but not passed are still "alive" for consideration during the second session. These bills remain in committees or on calendars. The AVMA is interested in several bills in the "alive" category and will continue to follow them during the second session.

Among these are those bills introduced to provide for the initial appointment of veterinarians in the Army and Air Force in the grade of first lieutenant. These bills (H.R. 2724, H.R. 3160, and S. 932) would grant veterinarians three years of constructive service credit instead of two years, as now required by law. The Department of the Army, the Departments of the Navy and the Air Force concurring, has advised the chairman of the Armed Services Committee of the House, Rep. Dewey Short, that the Department of Defense is opposed to enactment of the bills referred to.

Many bills have been introduced relative to extending social security coverage. At least one of these, H.R. 6812, would extend such coverage to approximately 10 million persons, for 6 million of whom it would be mandatory. Veterinarians, among other self-employed professional persons, would be required to participate if they earn $400 or more a year. H.R. 6812 was introduced at the request of the Eisenhower administration.

H.R. 10 and H.R. 11 are of special interest to self-employed veterinarians because, if enacted into law, it would authorize the exclusion from gross income for tax purposes that portion of income paid within a taxable year for a restricted retirement fund or paid to a life insurance company under a restricted retirement annuity contract (*see* JOURNAL, August, p. 150 and September, p. 253).

The AVMA had a representative appear before the Ways and Means Committee of the House on Aug. 12, 1953, in support of this legislation.

The House Ways and Means Committee, of which Mr. Daniel Reed, New York, is chairman, started hearings on the general subject of revenue revision on June 16, 1953, and continued such hearings after the Congress adjourned on August 3. The Committee's announced objective is to develop a permanent basis of taxation. Witnesses were required to limit their testimony to prospective, rather than retroactive, changes in the tax law.

WOMEN'S AUXILIARY

Convention Highlights.—The ninetieth annual convention, held in Toronto, July 20-23, 1953, will remain a happy memory for those who were fortunate enough to attend. Since it was held in Canada, the meeting had an international flavor. So, in addition to "The Star Spangled Banner," we sang "God Save the Queen" at the Opening Session. Toasts were made to the Queen and the President at our annual luncheon and at the alumni dinners. Everywhere were beautiful portraits of Queen Elizabeth II.

Since it was the coronation year, that was the theme of the decorations.

Our president, Mrs. H. S. MacDonald, made an excellent talk at the Opening Session. In the afternoon, the women's tea and reception was held at the famous Casa Loma castle. A tour of the castle was included in the activities and was most interesting. At the baseball game at Maple Leaf Stadium Monday evening, an exciting last inning gave fans a thrill.

There was a good attendance the following morning at the meeting of the Auxiliary house of representatives. Most of the states, regions, and provinces had accredited delegates to represent them and many interested members of the Auxiliary attended. The amendments read last year and voted upon favorably at this session were: (1) to substitute "student" for "junior" when referring to student chapters, to make our Auxiliary terminology agree with that of the AVMA; (2) to include regional experience as satisfying the requirements for nominees experience; (3) to eliminate the present office of chairman of the house, transferring these duties to the office of the president-elect. Proposed amendments submitted, to be voted on next year, were: (1) The initial membership fee shall be $1; (2) the "dues" year shall coincide with the calendar year (this to be effective January, 1955); (3) an office of "membership secretary" shall be created; (4) delineation shall be made of the duties of secretary and those of membership secretary.

An outstanding function of the convention was the annual luncheon of the Auxiliary served in the Stoodleigh restaurant at the Canadian National Exhibition grounds. Tables were gay with lovely flowers, but the center of interest was a breath-taking floral replica of King Edward's crown, about 2½ feet high. After the delicious luncheon, Mr. Davies lectured on a beautiful display of Spode china.

During the annual meeting, business from the Auxiliary house of representatives was presented for approval, reports of officers and committees were made, and the following officers were elected for the ensuing year: Mrs. R. A. Runnells, East Lansing, Mich., president; Mrs. L. R. Richardson, Ravenna, Ohio, president-elect; Mrs. Earl N. Moore, Wooster, Ohio, first vice-president; Mrs. Alfred E. Coombs, Skowhegan, Maine, second vice-president; Mrs. Lewis H. Moe, Stillwater, Okla., third vice-president; Mrs. C. M. Rodgers, Blandinsville, Ill., secretary; Mrs. Charles C.

The receiving line at the women's tea held at the castle, Casa Loma, during the AVMA annual meeting in Toronto. Left to right, they are Mrs. H. S. MacDonald, Mrs. A. E. Bott, Mrs. Russell A. Runnells, and Miss Eileen Kealey.

Rife, Atlanta, Ga., treasurer; and Mrs. E. A. Woelffer, Oconomowoc, Wis., recorder.

On Wednesday evening, wives and families were invited to the alumni dinners, which were followed by the president's reception at the

Mrs. Russell A. Runnells (left), incoming president of the Women's Auxiliary, being installed by Mrs. H. S. MacDonald, the retiring president.

Palace Pier, a delightfully cool spot on the shore of Lake Ontario.

While the AVMA and Auxiliary members were being entertained, the teenagers were not forgotten. They enjoyed a coketail party, an illustrated talk and tour of the British-American Oil Company, a tour of the Royal Ontario Museum, a tour of Casa Loma castle, a luncheon and beach party at Sunnyside Beach.

For Auxiliary members, the finale of the meeting was the installation of officers with

The officers of the Women's Auxiliary installed at the Toronto convention are (front row, left to right): Mrs. Earl N. Moore, first vice-president; Mrs. L. R. Richardson, president-elect; Mrs. Russell A. Runnells, president. Mrs. H. S. MacDonald is retiring president. (Back row, left to right): Mrs. E. A. Woelffer, recorder; Mrs. C. M. Rodgers, secretary; Mrs. Lewis H. Moe, third vice-president; and Mrs. Alfred E. Coombs, second vice-president. Mrs. Charles C. Rife, treasurer, was not present when the picture was taken.

those of the AVMA at the Closing Session of the convention.

To our hosts and hostesses, who so royally entertained us and so efficiently transported us to the various functions, a heartfelt and most appreciative "thank you!"

S/(MRS. L. R.) MILDRED K. RICHARDSON,
President-Elect.

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California Auxiliary.—The twenty-third annual meeting of the Women's Auxiliary to the California State Veterinary Medical Association was held at the Lafayette Hotel, Long Beach, June 22-24, 1953, with 80 women in attendance.

Mrs. T. J. Hage, president, presided over the business meeting held at the Victor Hugo restaurant. The members voted to continue annual donations to the AVMA Student Loan Fund, AVMA Research Fund, and the Medical Research Association of California. Five $200.00 student loans were granted to graduating students of the School of Veterinary Medicine, University of California, at Davis.

It was voted to establish a memorial fund. Those who wish may make donations to this fund in memory of friends or loved ones. These donations will in turn be used for the student loans.

The following officers were elected for the ensuing year; Mrs. Charles D. Stafford, Navoto, president; Mrs. Thomas B. Eville, Fresno, first vice-president; Mrs. Charles E. Irvin, Yucaipa, second vice-president; Mrs. John C. O'Brien, Sebastopol, secretary-treasurer.

Entertainment included a demonstration of hats, by Melinda Kay, who presented, in appropriate costume, hats of all vintage some of which dated back to President Lincoln's inauguration. The Wilton Hotel was the scene of the banquet and dance. Planned entertainment was concluded with a trip to the famous Knott's berry farm.

S/MRS. THOMAS B. EVILLE, *Retiring Secretary.*

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Georgia Auxiliary.—At the August 2 meeting of the Women's Auxiliary to the Georgia Veterinary Medical Association, members voted to donate $50 to the library fund. After the meeting, members enjoyed a fried chicken and fish dinner.

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Missouri Auxiliary.—On June 29, 1953, the Women's Auxiliary to the Missouri Veterinary Medical Association met in the Student Union Building af the University of Missouri. After a delightful luncheon and an entertaining book review, a business meeting was held, with President Mrs. Cecil Elder presiding. A report of the student loan fund showed a total of $460, with loans of $610 having been made thus far. Yearbooks were given to each member and it was voted to have them printed annually. Members voted to donate $25 to the AVMA

Research Fund. Mrs. Glenn Dunlap was appointed representative to the Women's Auxiliary of the AVMA.

A nominating committee was appointed with instructions to report at the next meeting to be held in Kansas City in February, 1954.

s/MRS. J. K. FARRELL, *Secretary.*

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Kentucky Auxiliary.—The Women's Auxiliary to the Kentucky Veterinary Medical Association was held July 8-9 at the Seelbach Hotel in Louisville. One of the outstanding features of the meeting was the elaborate luncheon planned for the group by members of the Jefferson County Auxiliary. At the business meeting, members voted to donate $25 to the Student Loan Fund. Members also enjoyed sight-seeing and shopping tours.

s/PAULINE WHITE, *Secretary.*

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Wisconsin Auxiliary.—The summer meeting of the Women's Auxiliary to the Wisconsin Veterinary Medical Association was held in Madison, June 8-10, in connection with the fifth annual Wisconsin postgraduate conference for veterinarians. In addition to a business meeting of the Auxiliary, events consisted of a luncheon, a tea, and the Conference dinner, at which the women were guests of their husbands.

Highlights of the business meeting included motions to make donations to the AVMA Research Fund for 1953-1954, to the AVMA Auxiliary Student Loan Fund, and to the new veterinary science library at the University of Wisconsin, for a book or books to be given in the name of the W.V.M.A. Auxiliary. Also at this meeting, reports were presented from the various regional auxiliary groups in Wisconsin: Mrs. Paul Candlin, Madison, reporting for the Dane County auxiliary; Mrs. Alton I. Moyle, Union Grove, for the Milwaukee auxiliary; Mrs. Glenn Downing, Waukesha, for the Southeastern Wisconsin auxiliary; and Mrs. M. L. Kaster, Cuba City, for the Southwestern Wisconsin auxiliary.

Mrs. Robert Smith, Belleville, chairman of the luncheon committee, was assisted by Mrs. Clarence Otteson, Mrs. Robert Romaker, and Mrs. C. A. Deadman, all of Madison.

The chairman of the tea was Mrs. Carl A. Brandly, Madison, assisted by Mrs. Walter Johnson, Janesville, and Mrs. Wayne Burch and Mrs. John Schwab, both of Madison.

s/MRS. ALTON I. MOYLE, *Secretary.*

APPLICATIONS

Applicants — Members of Constituent Associations

In accordance with paragraph (b) of Section 2, Article X, of the Administrative By-Laws, as revised at the annual meeting of the House of Representatives, Aug. 18, 1951, in Milwaukee, Wis., the names of applicants residing within the jurisdictional limits of the constituent associations shall be published once in the JOURNAL.

The following applicants have been certified as members of the constituent association that has jurisdiction over the area in which the applicant resides. This certification was made by the secretary of the constituent association in accordance with Section 2, Article X, of the Administrative By-Laws.

First Listing

CRANE, CHARLES S.
P. O. Box 806, Porterville, Calif.
D.V.M., Colorado A. & M. College, 1944.

GOODLOE, LEONARD O.
2701 Cumings, Omaha, Neb.
D.V.M., Kansas State College, 1950.

KINGSCOTE, ANTHONY A.
25 Mary St., Guelph, Ontario.
D.V.M., Ontario Veterinary College, 1928.

NASH, JAMES S.
Coldwater, Mich.
D.V.M., Michigan State College, 1935.

OTA, MINOL
125 Carmon Ave., Lovell, Wyo.
D.V.M., Texas A. & M. College, 1942.

RITTER, EARL C.
Sumner, Iowa.
D.V.M., Iowa State College, 1938.

Applicants — Not Members of Constituent Associations

In accordance with paragraph (b) of Section 2, Article X, of the Administrative By-Laws, as revised at the annual meeting of the House of Representatives, Aug. 18, 1951, in Milwaukee, Wis., notice of all applications from applicants residing outside of the jurdisdictional limits of the constituent associations, and members of the Armed Forces, shall be published in the JOURNAL for two successive months. The first notice shall give the applicant's full name, school, and year of graduation, post office address, and the names of his endorsers.

First Listing

LYDAY, CHARLES V.
167th Medical Detachment, APO 154, U. S. Army, New York, N. Y.
D.V.M., Ohio State University, 1942.
Vouchers: M. W. Hale and E. S. Watkins.

Second Listing

COX, SAMUEL A., 2938 Forest Drive, Columbia, S. Car.

DE LOS RIOS, JORGE W., Veterinary Section, Dept. of Animal Industry, Raleigh, N. Car.

DE MARCOS, ISIDORE A., Ave. Uno No. 23, San Pedro de los Pinos, Mexico, D.F., Mexico.

ROBINSON, ELMER L., P.O. Box 5, Saratoga Springs, N. Y.

VILLARTA, NARCISCO V., 227 Comercio St., Masilang, Makati Rizal, P.I.

1953 Graduate Applicants

The following are graduates who have recently received their veterinary degree and who have applied for AVMA membership under the provision granted in the Administrative By-

Laws to members in good standing of student chapters. Applications from this year's senior classes not received in time for listing this month will appear in later issues. An asterisk (*) after the name of a school indicates that all of this year's graduates have made application for membership.

First Listing

University of California*

JOHNSON, LOUIS F., D.V.M.
c/o Brighton Animal Hospital, Rt. 2, Box 3810, Sacramento, Calif.
Vouchers: L. J. Payen and C. M. Flinn.

Colorado A. & M. College

CLARK, SIDNEY H., D.V.M.
Molina, Colo.
Vouchers: L. Larsen and C. L. Hare.
MAY, HARRY A., D.V.M.
Rt. 3, Plant City, Fla.
Vouchers: J. S. DeRing and S. S. Morgan.
MURSKO, FRED P., D.V.M.
775 N. Oregon St., Ontario, Ore.
Vouchers: L. M. Koger and W. H. Ashton.

University of Illinois*

KINGRY, EARL L., D.V.M.
Seaton, Ill.
Vouchers: L. R. Bain and R. D. Hatch.

Iowa State College

GILLETTE, D. DALE, D.V.M.
Black Hills Veterinary Supply, Hermosa Rd., Rapid City, S. Dak.
Vouchers: J. V. Norris and C. A. Swick.

University of Michigan

RILETT, WALLACE J., D.V.M.
110 N. Milwaukee, Waterford, Wis.
Vouchers: T. H. Ferguson and K. E. Lloyd.
STEGEMAN, JAMES H., D.V.M.
780 Forest, Birmingham, Mich.
Vouchers: L. A. Hartrick and R. G. Schirmer.

University of Missouri

WHEATLEY, HILERY E., D.V.M.
340 Gladstone, Jacksonville, Ill.
Vouchers: G. R. Hendry and C. A. Henley.

University of Pennsylvania

GARLICK, ELTON C., V.M.D.
Box 883, Kannapolis, N. Car.
Vouchers: D. C. Beard and S. F. Scheidy.
HATHAWAY, E. JEFFERIES, V.M.D.
Clifton Park Manor, Apt. 73-5, Wilmington, Del.
Vouchers: J. H. Mark and R. C. Snyder.
NEUFER, FRANKLIN E., V.M.D.
307 S. Broad St., Kennett Square, Pa.
Vouchers: M. W. Arnold and C. W. Raker.
SEVOIAN, MARTIN, V.M.D.
New York State Veterinary College, Cornell University, Ithaca, N. Y.
Vouchers: J. Fabricant and C. I. Boyer, Jr.

Texas A. & M. College

ANDERSON, WILLIAM L., D.V.M.
5705 E. Belknap, Ft. Worth, Texas.
Vouchers: L. G. Cloud and J. W. Heaton.
BENSON, THOMAS L., D.V.M.
149 Arlington St., San Angelo, Texas.
Vouchers: W. G. DuBose and J. W. Taylor.
CROW, EMIL W., D.V.M.
53 Bliss St., Springfield, Mass.
Vouchers: W. E. Roy and J. M. Stoyak.
DAVIS, JOHN P., JR., D.V.M.
156 Taliaferro, Shreveport, La.
Vouchers: R. D. Franks and D. H. Traylor.
GOODMAN, JOHN G., D.V.M.
3300 S. Congress Ave., Austin, Texas.
Vouchers: A. A. Price and L. W. Gibbs.
HOWARD, THADDEUS M., JR., D.V.M.
1918 W. Woodlawn Ave., San Antonio, Texas.
Vouchers: A. W. Gaskin and J. F. Jordan.
MADDOX, REX M., D.V.M.
Rt. 3, Alvarado, Texas.
Vouchers: W. W. Kirkham and H. E. Redmond.
PHILLIPS, EULA JR., D.V.M.
2300 N. Main St., Victoria, Texas.
Vouchers: C. D. Barrett and R. H. Hartman.
PRICE, JACK W., D.V.M.
3301 McCullough Circle, Houston, Texas.
Vouchers: A. I. Flowers and H. G. Elliott.

Second Listing

University of California

BAYER, EDMOND V., D.V.M., 1632 West Ave., Santa Rosa, Calif.
BITTLE, JAMES L., D.V.M., 1642 N. Formosa, Los Angeles 46, Calif.
COOKE, KEITH G., D.V.M., Rt. 1, Box 269, Davis, Calif.
DARROW, LEE H., D.V.M., 113 Diamond Street, Arcadia, Calif.
MORTENSON, ROY K., D.V.M., 387 So. Main, Ephraim, Utah.
PIER, ALLAN C., D.V.M., 1653 Virginia Way, Arcata, Calif.

Colorado A. & M. College

ANDERSON, ROBERT G., D.V.M., Box 377, Columbus, Neb.
ARNOLD, FREDERICK W., D.V.M., 2800 W. Northern, Pueblo, Colo.
SCHEEL, EMIL H., JR., D.V.M., 1076 S. West 3rd Ave., Ontario, Ore.
SEGER, CAMERON L., D.V.M., 502 So. 24th St., Lincoln, Neb.

Iowa State College

CARLYLE, LEROY V., D.V.M., 328 W. Lapham St., Milwaukee, Wis.
DOUGHERTY, RICHARD F., D.V.M., Wynot, Neb.
JILLSON, DALE B., D.V.M., Elgin, Neb.
MARCUM, JACK C., D.V.M., Spencer, Neb.
MOORE, MEREDITH H., D.V.M., 150 N. 3rd St., Medford, Wis.

RUBEL, DONALD W., D.V.M., 4611 Floyd Ave., Sioux City, Iowa.
SUDHOFF, CHARLES O., D.V.M., 57 N. Washington, Danville, Ind.
VER PLOEG, WARREN L., D.V.M., Box 211, Brooklyn, Iowa.

Michigan State College

BUTTS, JOHN S., D.V.M., 113 N. Keats Ave., Louisville, Ky.
DOW, RAYMOND S., D.V.M., 7401 Richmond, Detroit, Mich.
HOWARD, JANET, D.V.M., 317 N. East Ave., Oak Park, Ill.
TANZOLA, JAMES R., D.V.M., 1330 Pennington Rd., West Englewood, N. J.

University of Missouri

MUTRUX, ROBERT D., D.V.M., Wheaton, Mo.
WALLACE, ROBERT D., D.V.M., 744 Lincoln Ave., St. Paul, Minn.

University of Pennsylvania

CALDWELL, DONALD B., V.M.D., R.F.D. #1, Monongahela, Pa.
HORN, RICHARD C., V.M.D., 274 Southmont Blvd., Johnstown, Pa.
RICE, SAMUEL C., V.M.D., Rd. 2, Sharpsville, Pa.
SLICK, JOSEPH D., V.M.D., 725 Railroad St., Forest City, Pa.
TRUBAN, WILLIAM A., V.M.D., 135 Spring St., Woodstock, Va.

Texas A. & M. College

CADENHEAD, PHILIP, D.V.M., Box 673, Hempstead, Texas.
DALOVISIO, LEONARD P., D.V.M., 1310 Ninth St., Lake Charles, La.
MELIUS, HENRY C., D.V.M., 712 Phosphor Ave., New Orleans 20, La.
THAXTON, CURTIS L., D.V.M., Box 551, Wellington, Texas.

State College of Washington

BRAUNER, EUGENE J., D.V.M., 1970 Bristol Ave., Stockton, Calif.
LEWIS, RUSSEL G., D.V.M., 831 Lombard, Everett, Wash.

U. S. GOVERNMENT

Veterinary Personnel Changes.—The following changes in the force of veterinarians in the U. S. Bureau of Animal Industry are reported as of Aug. 21, 1953.

NEW APPOINTMENTS

Perry M. Boyd, Jr., Mexico City, Mex.
Douglass V. Berglind, Mexico City, Mex.
LeRoy V. Carlyle, Madison, Wis.
Garrie R. Davis, Baltimore, Md.
Roger D. Donnelson, Suffolk, Va.
Joseph W. Etheridge, Denver, Colo.
Roger O. Feldman, Denver, Colo.
Francis Gunster, Portland, Ore.
Robert G. Jones, Denver, Colo.
Vader M. Loomis, Raleigh, N. Car.
Joseph O. Minnick, Kansas City, Kan.
Peter T. Pedersen, San Francisco, Calif.
Staton G. Possien, Nashville, Tenn.
Frank H. Shimp, Kansas City, Kan.
Charles P. Smith, Omaha, Neb.
Arthur M. Strohbehn, Omaha, Neb.
Glenn B. Van Ness, Washington, D. C.

MILITARY FURLOUGH

Donald L. Anderson, Little Rock, Ark.
Ralph W. Grogan, Fort Worth, Texas.
Rex M. Maddox, Fort Worth, Texas.
Leonard D. Smith, Fort Worth, Texas.
Leroy W. Thom, St. Paul, Minn.

RESTORATION AFTER MILITARY FURLOUGH

Murray H. Sherber, Oklahoma City, Okla.

CANCELLATIONS

Edward A. Geue, Olympia, Wash.
Carroll C. Steele, Omaha, Neb.

RESIGNATIONS

Harold E. Beckmann, Olympia, Wash.
Fred A. Boies, Des Moines, Iowa.
Kenneth L. Bollens, Harrisburg, Pa.
Lawrence D. Boston, Oklahoma City, Okla.
Charles T. Caraway, Mexico City, Mex.
Fred J. Crow, Des Moines, Iowa.
David Eisenberg, New York, N. Y.
Reis R. Lindley, Frankfort, Ky.
Daniel Paradee, Indianapolis, Ind.

RETIREMENTS

Beauford L. Gray, West Fargo, N. Dak.
Ralph A. Parsons, San Francisco, Calif.

SEPARATIONS

Lloyd J. Michael, Helena, Mont.
Haldor T. Mydland, Sioux City, Iowa.

TRANSFER

John J. Ash, from Albany, N. Y., to Topeka, Kan. (cancelled).
Charles Barnes, from Springfield, Mass., to Ottumwa, Iowa.
Robert F. Batchelor, from Baton Rouge, La., to Cheyenne, Wyo.
John V. Beasley, Jr., from Memphis, Tenn., to Omaha, Neb.
Fred E. Castro, from Kansas City, Kan., to Omaha, Neb.
Merle E. Christensen, from Portland, Ore., to Sioux City, Iowa.
Salvatore Corridore, from South St. Joseph, Mo., to New York, N. Y.
William F. Daut, Jr., from Omaha, Neb., to Arkansas City, Kan.
Donald E. DeTray, from Washington, D. C., to Beltsville, Md.
Wesley A. Decker, from Pueblo, Colo., to Denver, Colo.
John T. E. Dinwoodie, from Bismarck, N. Dak., to Helena, Mont.
Emilio Esposito, from New York City, to Albany, N. Y.
Ross W. Gerding, from Columbia, S. Car., to Buffalo, N. Y.
Eugene E. Hamann, from Kansas City, Kan., to White Hall, Ill.
Glen C. Harrington, from Rapid City, S. Dak., to Pueblo, Colo.
William S. Houk, from Omaha, Neb., to Springfield, Mass.
James L. Hourrigan, from El Paso, Texas, to Washington, D. C.
Ries R. Lindley, from Mexico City, Mex., to Frankfort, Ky.
Chester A. Manthei, from Washington, D. C., to Beltsville, Md.
Lawrence O. Mott, from Washington, D. C., to Beltsville, Md.
Hal S. Nevius, from East St. Louis, Ill., to White Hall, Ill.
T. Bernard Sawyer, from Kansas City, Kan., to Omaha, Neb.
Scott N. Shaw, from Los Angeles, Calif., to Portland, Ore.
Sebastian N. Studer, from Arkansas City, Kan., to Washington, D. C.
Donnis E. Sweeney, from East St. Louis, Ill., to White Hall, Ill.
Carman A. Towne, from Huron, S. Dak., to Rapid City, S. Dak.

AMONG THE STATES AND PROVINCES

Arkansas

Practitioner's Association.—The Arkansas Veterinary Practitioner's Association held its annual meeting in Hot Springs on August 8 and 9 with over 50 general practitioners from the state in attendance.

The principal speaker was **Dr. Bill Erwin**, of Tulsa, Okla., who spoke on hospital management and procedures, and showed motion pictures on surgical techniques employed in his practice. **Dr. T. D. Mason** of Little Rock spoke and showed motion pictures on canine orthopedics. Other speakers were **Drs. Quentin R. Jerome**, West Memphis, and **John Smith**, Stuttgart.

The new officers of the Association are Drs. Cary Clark, El Dorado, president; T. D. Mason, Little Rock, vice-president; and J. F. Alberson, North Little Rock, secretary-treasurer.

s/J. F. ALBERSON, *Secretary.*

California

Mid-Coast Association.—The annual picnic of the Mid-Coast Veterinary Medical Association was held at the ranch and animal clinic of Dr. John Carricaburu at Santa Ynez on Sunday, August 16. About 20 members and friends were present and an excellent dinner of barbecued steaks with all the trimmings was served, with chef, Dr. A. M. McCapes, presiding at the barbeque pit.

A short business meeting was held after dinner. At the annual meeting in June, which the secretary was unable to attend, Dr. G. B. Collins, Paso Robles, was elected president; and Dr. George McCollister, Los Angeles, secretary-treasurer.

s/GEORGE MCCOLLISTER, *Secretary.*

Georgia

South Georgia Association.—On August 2, the South Georgia Veterinary Medical Association met at the Lake Blackshear Veterans Memorial Park.

The meeting was called to order by **President Shirley Shepard. Dr. Jesse Hardy** of Valdosta was introduced to the group. A letter of appreciation from Dr. and Mrs. Wm. L. Sippel was read to the members. The Sippels had been presented with a silver pitcher by the Women's Auxiliary and Association members on their departure to Texas A. & M. College, where Dr. Sippel is studying for his Ph.D. degree.

Dr. Tolliver introduced **Dr. C. C. Sapp**, of Albany, who gave an excellent case history of an abortion storm caused by leptospirosis. He also discussed photosensitization in cattle. Other speakers included **Drs. S. F. Stapleton**, Americus; **Shirley Shepard**, Moultrie; **W. F. Bozeman**, Adel; **Tom Bush**, Cordele; and **C. C. Rife**, Atlanta.

A fried chicken and fish dinner was enjoyed by the members and their wives.

s/MAX B. ATWOOD, *Secretary.*

Illinois

Death of Mrs. Carpenter.—Mrs. Cliff D. Carpenter, wife of Dr. Cliff D. Carpenter, Evanston, Ill., died on July 4, 1953. Mrs. Carpenter, a graduate of Syracuse University and of the University of Southern California, developed and supervised the first teacher-parent cooperative prekindergarten school in the United States, at Alhambra, Calif., a branch of Whittier College. She is survived by her husband and a sister. Interment was at Unadilla, N. Y.

Indiana

Tenth District.—The Tenth District Veterinary Medical Association of Indiana held a meeting on July 16, 1953, in Riley Park, Greenfield.

Mr. Ralph Waltz, executive secretary of the Indiana Swine Breeders' Association, explained their excellent plans to improve and control good health of swine.

Dr. and Mrs. H. L. Decker were hosts and did a fine job in having ample chicken barbecued and kept warm for the large crowd present.

s/J. L. KIXMILLER, *Resident Secretary.*

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Northwestern District.—On May 28, the Northwestern Indiana Veterinary Medical Association met in Monticello. **Dr. Oscar Smith**, assistant state veterinarian, compared the practice of veterinary Medicine in Canada and the United States.

Following the dinner at the Sportsman's Club, the women were entertained by Mrs. Chas. Lindborg in her home. Dr. and Mrs. Lindborg were hosts to the group.

s/J. L. KIXMILLER, *Resident Secretary.*

Iowa

Northwest Association.—At the July 21 meeting of the Northwest Iowa Veterinary Association, the following officers were elected: Drs. D. W. Poppen, Sheldon, president; and L. H. Melles, Paullina, secretary-treasurer.

s/LEONARD MELLES, *Secretary.*

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Death of Mr. Hershey.—Mr. Guy F. Hershey, 71, died July 6, 1953, in a Dayton, Ohio, hospital. For thirty years prior to his retirement a year ago, he was the Cedar Rapids sales representative for the Fort Dodge Laboratories.

Kentucky

State Association.—The forty-second annual meeting of the Kentucky Veterinary Medical Association was held at the Seelbach Hotel in Louisville on July 8-9, 1953. The meeting was well attended and highly successful, with good publicity from the press as well as telecasts on CBS, TV.

Program speakers included **Drs. W. M. Coffee** and **Charles Ogletree,** La Center; **F. E. Brutsman,** Traer, Iowa; **Wade Brinker**, Michigan State College, East Lansing; and **L. L. Breeck,** state veterinarian, Frankfort.

New officers of the Association are Drs. E. L. Taylor, Georgetown, president; W. W. Boyd, Hodgenville, first vice-president; John Miller, Clinton, second vice-president; H. A. Gray, Bowling Green, third vice-president; and T. J. Stearns, Louisville, secretary-treasurer. Dr. Ross Brown, University of Kentucky, Lexington, was elected state resident secretary of the AVMA to replace Dr. L. M. Roach who is now in the Army. Dr. F. M. Kearns was elected alternate delegate to the AVMA House of Representatives.

s/T. J. STEARNS, *Secretary.*

Louisiana

Personals.—Dr. J. I. Melancon, president of the Louisiana Veterinary Medical Association, addressed the vocational agricultural teachers on June 25, 1953, at the annual convention of the state Vocational Teachers Association.

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The following Louisiana men who graduated this spring under the regional training program have, we understand, located for practice in their home state: Drs. Willard Pounds, associated with Dr. T. A. Rawls, New Orleans; Garth Cline, associated with Dr. C. F. Young, Shreveport; Thomas Higginbotham, locating at Mer Rouge; James N. Thomas, at Welsh; Howard Wilcox, at Haynesville; and J. W. Patterson, with the Livestock Sanitary Board, in the poultry disease diagnostic laboratory at Ruston.

Michigan

Michiana Association.—The Michiana Veterinary Medical Association and Women's Auxiliary held their annual picnic on August 16 at Jean Klock Park in Benton Harbor, Mich. After a feast of fried chicken, the afternoon was spent swimming, sunning, and swapping tales of veterinary medicine. Everyone enjoyed the welcome change from the daily toils of our profession and returned home with renewed vim, vigor, and vitality.

s/BRUCE HOSTRAWSER, *Secretary.*

• • •

Dr. von Rosenberg Dies after Long Illness.—Dr. Hilton O. von Rosenberg (TEX '20), manager of the Department of Veterinary Medicine at Parke, Davis & Company, died July 25 in Detroit following an illness of more than a year. Born at Hallettsville, Texas, he engaged in practice there and at Cuero, Texas, for six years. He then was appointed first assistant state veterinarian of Texas.

In 1928, Dr. von Rosenberg joined Parke, Davis at Kansas City. In 1943, he was transferred to the firm's New Orleans' branch, then to the general offices in Detroit.

Survivors include the widow, Mrs. Monte von Rosenberg, of Grosse Pointe, Mich., a daughter, and three brothers.

Minnesota

Death of Dr. Titterud.—Funeral services were held on Monday, July 27, 1953, for Dr. O. H. Titterud, 74, of Preston, who died July 23. Dr. Titterud was born Feb. 4, 1879, and in 1905 he entered the veterinary college of the University of Toronto. After completion of his studies at Toronto, he attended the Chicago Veterinary College for a year. He started practice in Preston in 1908 and was engaged actively in practice until a year ago when failing health compelled his retirement.

Throughout his life, he was devoted to public service. For twenty-seven years, he served on the village council. He was a member of the AVMA, a member and past president of the Tri-State Veterinary Medical Association, a member of Prestoné Blue Lodge, and the Malta Commandery of the Knights Templar.

Because of the fine conduct of his life, he was thoroughly respected by everyone. All Preston business places closed during the funeral services in respect to his memory.

Missouri

Kansas City Association.—On Saturday, August 22, members of the Kansas City Veterinary Medical Association, and their families, met at the Knappenberger farm at Olathe for their annual picnic. The picnic supper, chicken with all the trimmings, was served by women of the Lenexa Methodist Church.

s/J. C. DAVIS, *Secretary.*

Montana

State Association.—The Montana Veterinary Medical Association met June 11-13, 1953, in Bozeman, Mont. The meeting was well attended, and excellent speakers presented a well-rounded program.

Program speakers were **Drs. O. R. Adams,** Colorado A. & M. College, Fort Collins; **C. M. Bemis,** State College of Washington, Pullman; **Charles L. Davis,** Branch Pathological Laboratory, U. S. BAI, Denver, Colo.; **Alvin Flowers,** Montana State College, Bozeman; **H. J. Hill,** Colorado A. & M. College; **Carl L. Larson,**

Rocky Mountain Laboratory, National Institute of Health, Hamilton; **F. M. Nelson**, Montana Livestock Sanitary Board, Livingston; and **Mark Welsh**, Lederle Laboratories, American Cyanamid Co., Pearl River, N. Y.

s/E. A. TUNNICLIFF, *Secretary.*

New Jersey

Department of Animal Pathology Created.—The Board of Managers of the New Jersey Agricultural Experiment Station has authorized the director to create a department of animal pathology to deal with diseases of fowl, cattle, horses, swine, and other farm animals. The board also voted to submit a budget providing for constructing, equipping, and staffing a new poultry pathology laboratory near the Monmouth Ocean county line.

New York

Dr. Dukes Honored.—Dr. Henry Hugh Dukes, head of the Department of Physiology, Cornell University, was honored on June 13 by receiving the Chicago Merit Award on Alumni Day at Iowa State College, Ames, Iowa. One such award is made annually to an alumnus of each division of the college for outstanding contributions in their field and in the advancement of human welfare. Dr. Dukes received his B.S. degree from Clemson College in 1915, his D.V.M. degree from Iowa State College in 1918, and an M.S. degree from the same school in 1923. Dr. Dukes taught physiology at Iowa State College for eleven years before assuming his present position at Cornell University. He is the author of the widely used textbook "Physiology of Domestic Animals."

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Death of Dr. Wende.—Dr. Bernhard P. Wende, for eleven years an honor roll member of the AVMA, died March 9, 1953, at the age of 84. Dr. Wende received his D.V.M. degree from Ontario Veterinary College in 1892 and in 1893 was appointed a meat inspector in the U. S. Bureau of Animal Industry. He was named chief inspector in 1901, a post he held until his retirement in 1938 at the age of 70. During these years, he was noted for his efforts to promote more humane treatment of livestock. His work included campaigns to eradicate tuberculosis in animals, to require periodic feeding and watering of livestock in transit, and to eliminate foot-and-mouth disease. After his retirement, he spent many happy hours in his garden, of which he was rightfully proud.

Dr. Wende is survived by a son, Ernest A. of Paducah, Ky.; five daughters, Mrs. Bernadine Beehler of Eden, Mrs. Elizabeth Westinghouse of Williamsville, Mrs. Dorothy Devlin of Mountainside, N. J., Mrs. Marjorie Kasso of New York City, and Mrs. Eleanor Bean; a brother, Albert Wende, and 19 grandchildren.

Members of the Western New York Veterinary Medical Association made a contribution to the Research Fund of the AVMA in memory of Dr. Wende.

Ohio

Executive Secretary of Ohio State V.M.A. Appointed.—The appointment of William S. Konold of William S. Konold and Associates, Columbus, Ohio, as executive secretary of the Ohio State Veterinary Medical Association has been announced by Dr. W. O. Keefer of Springfield, Ohio, president, and Dr. F. J. Kingma of Columbus, Ohio, secretary. This announcement followed a meeting of the officers and the executive committee of the association in June.

Beginning at once, headquarters of the Ohio State V.M.A. will be located at 50 E. Broad St., Columbus 15, Ohio, where Mr. Konold has maintained offices for the past twenty years as an organization and public relations consultant and manager. Heretofore, the executive secretary's duties have been handled by Dr. Kingma at the veterinary laboratory of the Ohio State University.

The William S. Konold firm handles the administrative and operational affairs of several businesses and of several local, state, and national trade and professional associations as well.

VETERINARY MILITARY SERVICE

Colonel Caldwell Retires.—Colonel George L. Caldwell, V.C., Office of the Army Surgeon General, left his post as assistant head of the Veterinary Division on June 30. Colonel Caldwell officially retired on February 28, but was recalled March 1 to serve for an additional three months. On July 1 he reverted to inactive status.

Beginning his career in the Army Medical Service as a 2nd lieutenant in September, 1917, when the Veterinary Corps was little more than a year old, Colonel Caldwell spent over ten years, of the more than thirty-five that he was in service, in the Veterinary Division, Office of the Army Surgeon General. He was first assigned as assistant chief of the Division in 1936. After a three-year tour he was sent to another post, but in 1946 he was reassigned to the Veterinary Division where he remained until his retirement.

Colonel Caldwell was born in Hesperia, Mich. He attended high school in Fremont and received his D.V.M. from Michigan State College in 1915. Following graduation, he was an instructor at the University of Arkansas.

He has been awarded the Army commendation ribbon, the American theater ribbon, the World War II victory medal, and the American defense ribbon. His appointment as colonel in the Regular Army came in 1943. In 1952, he served as president of the District of Columbia Veterinary Medical Association.

Col. George L. Caldwell

Colonel and Mrs. Caldwell have resided in South Arlington, Va. Following his retirement, they expect to make their home in Avoca, Ark.

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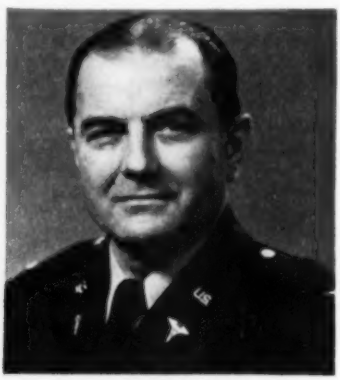
New Assistant Chief Announced for Army Veterinary Division.—Colonel Ralph W. Mohri, V.C., has been named assistant chief of the Veterinary Division in the Office of the Army Surgeon General as of July 1, according to an announcement from Major General George E. Armstrong, the Army Surgeon General.



Col. Ralph W. Mohri

He succeeds Col. George L. Caldwell, V.C. (retired), who has gone to Avoca, Ark., to make his home. The new assistant chief of the Veterinary Division was Second Army veterinarian at Fort Meade, Md., for four years prior to coming to Washington, D.C.

Colonel Mohri was born in Kansas City, Mo., but regards Manhattan, Kan., as his home city. He was graduated as a doctor of veterinary medicine from Kansas State College in 1929 and entered the Army Veterinary Corps as a second lieutenant in April, 1930. He completed the basic course at the Army Veterinary School (now merged with the Army Medical Service Graduate School at Walter Reed Army Medical Center) in 1932, and in the same year graduated from the medical field service school at Carlisle Barracks, Pa. He also attended the cavalry school at Fort Riley, Kan.

After three years of duty on the faculty of the Army Veterinary School, Colonel Mohri had his first overseas assignment in the Panama Canal department. When World War II began, he was with the Second Cavalry Division at Fort Riley and in 1943 was named theater veterinarian for the China-Burma-India theater and later, the India-Burma theater.

In recognition of his efforts and subsequent success in organizing veterinary medical services for the American Forces there, Colonel Mohri was awarded the Legion of Merit.

Upon his return to the United States, he was assigned to the Medical Field Service School at Carlisle Barracks, now established at the Brooke Army Medical Center, Fort Sam Houston, Texas, to be director of the Department of Veterinary Medicine. Four years later he left for Fort Meade for duty with the Second Army.

Colonel and Mrs. Mohri live at 21 Piping Rock Drive, Silver Spring, Md. They have three children, Mrs. Barbara S. Pollock, Miss Emily K. Mohri, and William F. Mohri.

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Brigadier General Kester, Delegate at International Congress.—Brigadier General Wayne O. Kester, U.S.A.F., V.C., assistant for veterinary services, Office of the Surgeon General, U.S.A.F., was an official delegate of the U. S. Government at the Fifteenth International Veterinary Congress in Stockholm, Aug. 9-15, 1953. While in Europe, General Kester will make staff visits to various Air Force installations in connection with the aspects of veterinary activities.

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Air Force Officers Awarded Public Health Degrees.—Six Air Force veterinary officers recently received master's degrees in public health. Lieutenant Colonel Marley C. Clark, Lieutenant Colonel Harold F. Beadner, and First Lieutenant Elmer L. Lashua received the award from the University of Michigan; Lieutenant Colonel Albert A. Taylor, from Harvard University; Major Roy E. Kyner, Jr., and Major

Wilbert C. Nichols, from the University of California. Major Kyner was elected to membership in Delta Omega, an honorary public health fraternity.

MARRIAGE

Dr. F. A. Bartus (UP '52), West Brownsville, Pa., was recently married to Katherine Bogus of Chicago, Ill.

BIRTHS

Dr. (COL '46) and Mrs. George W. Moreland, Oklahoma City, Okla., announce the birth of a daughter, Judy Beth, on May 27, 1953.

Dr. (OSU '41) and Mrs. Stanley R. Cooper, Beverly Hills, Calif., announce the birth of a son, Steven Sloane, on Aug. 1, 1953.

Dr. (KSC '53) and Mrs. Willard L. Lynn, Franksville, Wis., announce the birth of a daughter, Barbara Jean, on Aug. 14, 1953.

DEATHS

Bradford D. Curtis (ONT '95), 85, Brockton, Mass., died Aug. 7, 1953. Dr. Curtis was a general practitioner.

★**William W. Dimock** (COR '05), 73, Lexington, Ky., died July 23, 1953. An obituary appears on page 353 of this JOURNAL. Dr. Dimock was admitted to the AVMA in 1906.

Samuel E. Hayes (GR '10), 73, Hutchinson, Kan., died June 9, 1953. Dr. Hayes was a member of the Kansas Veterinary Medical Association for nearly thirty-five years and had been a member of the AVMA. He is survived by his widow.

★**Alexander V. Hollister** (MCK '07), 69, Clinton, Wis., died Feb. 19, 1953. Dr. Hollister, a general practitioner, was a member of the Wisconsin and Rock Valley Veterinary Medical Associations and of the AVMA.

William D. Howatt (UP '05), New Rochelle, N. Y., died recently. Dr. Howatt was a general practitioner.

Berton T. Larsen (WSC '16), Ellensburg, Wash., died recently. Dr. Larsen was a general practitioner.

Thomas B. Lindsay (ONT '23), Yarmouth, N. S., Canada, died recently. Dr. Lindsay was a general practitioner.

Roy F. Miller (KSC '35), 45, Fairfield, Iowa, was killed July 31, 1953, by a bolt of lightning while he was attending a cattle sale. Dr. Miller is survived by his widow and one daughter.

★**Willi Mock** (OVC '92), 83, Easton, Pa., died 1953. Dr. Mock, who had retired from active practice about twenty-five years ago, had been associated with the Messinger Supply Company since it was established in 1911. He served for a time as secretary-treasurer of the company and in 1941 became its president. For the past two years, he was chairman of the board. For many years, Dr. Mock was a member of the AVMA.

★**Vernon P. Norton** (GR '05), 78, Wisconsin Rapids, Wis., died Jan. 31, 1953. Dr. Norton, a general practitioner, was a member of the Wisconsin Veterinary Medical Association and of the AVMA. He is survived by his widow, one son, and four daughters.

★**Sobey Okuyama** (OSU '23), 64, Genesee Depot, Wis., died recently. Dr. Okuyama was admitted to the AVMA in 1934.

Lloyd S. Robertson (CVC '06), Oklahoma City, Okla., died June 23, 1953. Dr. Robertson was employed by the U. S. Bureau of Animal Industry.

Harry G. Sands (OVC '93), 84, Benton, Pa., died Feb. 7, 1953. Dr. Sands was engaged in meat inspection.

★**Oscar H. Titterud** (CVC '06), 74, Preston, Minn., died July 23, 1953. An obituary appears on page 370 of this JOURNAL. Dr. Titterud was admitted to the AVMA in 1916.

Hilton O. von Rosenberg (TEX '20), 55, Grosse Pointe Park, Mich., died July 25, 1953. An obituary appears on page 370 of this JOURNAL. Dr. von Rosenberg was a member of the AVMA.

★**Bernhard P. Wende** (OVC '92), 84, Buffalo, N. Y., died March 9, 1953. An obituary appears on page 370 of this JOURNAL. Dr. Wende was an honor roll member of the AVMA.

Dell E. Wishard (IND '11), 64, Saltillo, Miss., died June 15, 1953. Dr. Wishard served with the U. S. Department of Agriculture for the past eleven years. He had been a member of the AVMA. Dr. Wishard is survived by his widow.

★**Frank P. Woolf** (API '10), 65, Fountain City, Tenn., died May 20, 1953. Dr. Woolf was admitted to the AVMA in 1917. He is survived by his widow.

B. C. Wright (CVC '17), Roberts, Ill., died recently from injuries received in an automobile accident. Dr. Wright was a general practitioner.

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Deaths Reported in Error.—The report of Dr. Randall J. Devereux' death in the September JOURNAL (p. 269) was in error. The name should have been Randall W. Devereux. An obituary for Dr. Randall W. Devereux will appear in the November JOURNAL.

Dr. Leonard N. Ritter, Hattiesburg, Miss., was erroneously reported deceased in the September JOURNAL (p. 270) on authority of a report from the U. S. Postal Service.

★In... of the AVMA.

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*This committee is charged with the selection of recipients of the Twelfth International Veterinary Congress Prize, the Borden Award, and the AVMA Award.

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Thomas J. Jones, School of Veterinary Medicine, University of Georgia, Athens, Ga. (1955).

C. K. Whitehair, College of Veterinary Medicine, University of Illinois, Urbana, Ill. (1956).

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Program*

(Ex Officio)

This committee is composed of the chairmen and secretaries of the six sections with the executive secretary or assistant executive secretary acting as the chairman. (See Section Officers, page 375)

*Pursuant to article XII, section 1, part 4, of the Administrative By-Laws, as amended at the Seventy-Eighth Annual Meeting.

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National Research Council, Division of Medical Sciences.—W. A. Hagan, New York Veterinary College, Ithaca, N. Y. (1956).

National Society for Medical Research.—W. T. S. Thorp, Experimental Biology and Medicine Institute, National Institutes of Health, Bethesda, Md.

Ralston Purina Research Fellowship Committee.—L. C. Ferguson, Department of Bacteriology, Ohio State University, Columbus, Ohio.

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*Deceased. Unexpired term will be filled by appointment.

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COMING MEETINGS

Notices of Coming Meetings must be received by 4th of month preceding date of issue

West Virginia Veterinary Medical Association. Fall meeting. Daniel Boone Hotel, Charleston, W. Va., Oct. 4-5, 1953. Elvin R. Coon, 98 Capitol Building, Charleston 5, W. Va., secretary.

Purdue University. Annual short course for veterinarians. Purdue University, Lafayette, Ind., Oct. 7-9, 1953. L. M. Hutchings, chairman.

Georgia Coastal Plain Experiment Station. Annual short course for veterinarians. Georgia Coastal Plain Experiment Station, Tifton, Ga., Oct. 12-13, 1953. Peter H. Langer, secretary.

Pennsylvania State Veterinary Medical Association. Annual meeting. Roosevelt Hotel, Pittsburgh, Pa., Oct. 14-16, 1953. R. C. Snyder, Walnut St. and Copley Rd., Upper Darby, Pa., secretary.

Eastern Iowa Veterinary Association. Annual Meeting. Hotel Montrose, Cedar Rapids, Iowa, Oct. 15-16, 1953. Wayne W. Thompson, Earlville, Iowa, secretary.

Illinois, University of. Annual veterinary conference and short course. College of Veterinary Medicine, University of Illinois, Urbana, Oct. 15-17, 1953. L. E. Boley, chairman.

New England Veterinary Medical Association. Annual meeting. Hotel Viking, Newport, R. I., Oct. 18-20, 1953. C. Lawrence Blakely, 180 Longwood Ave., Boston 15, Mass., secretary.

Florida Veterinary Medical Association. Annual meeting. Daytona Beach, Fla., Oct. 18-20, 1953. Robert P. Knowles, 2936 N. W. 17th Ave., Miami, Fla., secretary.

South Dakota Veterinary Medical Association. Annual meeting. Cataract Hotel, Sioux Falls, S. Dak., Oct. 22-23, 1953. R. M. Scott, 2419 S. Main St., Sioux Falls, S. Dak., secretary.

Omega Tau Sigma Fraternity. Annual convention. University of Georgia, Athens, Ga., Oct. 24, 1953. E. D. Risher, Jr., Box 235, Ag Hill, Athens, Ga.

Interstate Veterinary Medical Association. Annual meeting. Martin Hotel, Sioux City, Iowa, Oct. 29-30, 1953. K. W. Smith, 510 W. 19th, Sioux City, Iowa, secretary.

Oregon State Veterinary Medical Association. Fall meeting, Portland, Ore., Oct. 31, 1953. E. L. Holden, Oswego, Ore., secretary.

Mississippi Valley Veterinary Medical Association. Annual meeting. Hotel Pere Marquette, Peoria, Ill., Nov. 4-5, 1953. A. C. Gathmann, 202 Front Street, Galva, Ill., secretary.

Southern Veterinary Medical Association. Annual meeting. Atlanta Biltmore Hotel, Atlanta, Ga., Nov. 9-11, 1953. A. A. Husman, Raleigh, N. Car., secretary.

Midwest Small Animal Association, annual meeting, and American Animal Hospital Association, regional meeting. Hotel Burlington, Burlington, Iowa, Nov. 18-19, 1953. J. Porter Coble, 2828 S. MacArthur Blvd., Springfield, Ill., secretary.

Nebraska Veterinary Medical Association. Annual meeting. Lincoln, Neb., Dec. 1-3, 1953. G. A. Ackerman, 319 L St., Lincoln, Neb., chairman, program committee.

Animal Care Panel. Annual meeting. Billings Hospital, University of Chicago, Chicago, Ill., Dec. 2-3, 1953. The program will be ready for distribution in September and may be obtained by writing to Robert J. Flynn, Secretary, Animal Care Panel, Argonne National Laboratory, P. O. Box 299, Lemont, Ill.

University of Pennsylvania. Annual conference for veterinarians. University of Pennsylvania, School of Veterinary Medicine, Philadelphia, Pa., Jan. 5-6, 1954. Walter E. LaGrange, chairman, conference committee.

New York State Veterinary College. Annual conference for veterinarians. New York State Veterinary College, Cornell University, Ithaca, N. Y., Jan. 6-8, 1954. W. A. Hagan, dean.

Kansas State Veterinary Medical Association. Annual meeting. Broadview Hotel, Wichita, Kan., Jan. 18-20, 1954. K. Maynard Curts, Kansas City, Kan., secretary.

Iowa Veterinary Medical Association. Annual meeting. Hotel Fort Des Moines, Des Moines, Iowa, Jan. 19-21, 1954. F. B. Young, Waukee, Iowa, executive secretary.

Texas Veterinary Medical Association. Annual meeting. Hotel Galvez, Galveston, Texas, Jan. 25-26, 1954. Alvin A. Price, College Station, Texas, executive secretary.

Minnesota State Veterinary Medical Society. Annual meeting. St. Paul Hotel, St. Paul, Minn., Jan. 25-27, 1954. B. S. Pomeroy, St. Paul, Minn., secretary.

Illinois State Veterinary Medical Association. Annual meeting. Morrison Hotel, Chicago, Ill., Feb. 9-12, 1954. A. G. Misener, 6448 N. Clark St., Chicago 26, Ill., secretary.

Missouri Veterinary Medical Association. Annual meeting. Hotel Continental, Kansas City, Mo., Feb. 22-23, 1954. Paul L. Spencer, Jefferson City, Mo., secretary.

American Animal Hospital Association. Annual meeting. Hotel Statler, New York, N. Y., May 5-8, 1954. Wayne H. Riser, 5335 Touhy Ave., Skokie, Ill., secretary.

(Continued on p. 34)

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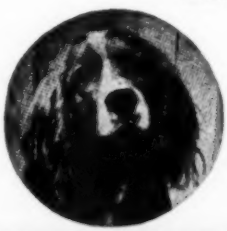

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Bay Counties Veterinary Medical Association, the second Tuesday of each month. David E. Madsen, 44 South 4th St., San Jose, Calif., secretary.

Cedar Valley Veterinary Association, the second Monday of each month (except July and August) at Black's Tea Room, Waterloo. F. E. Brutsman, Traer, Iowa, secretary.

Central California Veterinary Medical Association, the fourth Tuesday of each month. W. E. Smith, 516 Oatman, Sanger, Calif., secretary.

Central Carolina Veterinary Medical Association, the second Wednesday of each month at 7:00 p.m. in the O'Henry Hotel in Greensboro. Mr. Earl D. Adams, Greensboro, N. Car., secretary.

Chicago Veterinary Medical Association, the second Tuesday of each month. Robert C. Glover, 1021 Davis St., Evanston, Ill., secretary.

Coastal Bend Veterinary Association (Texas), the second Wednesday of each month. J. E. Hoban, 4301 S. Port Ave., Corpus Christi, Texas, secretary.

Coon Valley Veterinary Association, the second Wednesday of each month, September through May, at the Bradford Hotel, Storm Lake, Iowa. J. R. Rosdail, Pomeroy, Iowa, secretary.

Cuyahoga County (Cleveland, Ohio) Veterinary Medical Association, the first Wednesday of each month—September through May (except January)—at 9:00 p.m. at the Carter Hotel, Cleveland, Ohio. Roger W. Grundish, 4217 Mayfield Road, South Euclid 21, Ohio, secretary.

East Bay Veterinary Medical Association, bimonthly, the fourth Wednesday. Robert Clemens, 23352 Orchard, Hayward, Calif., secretary.

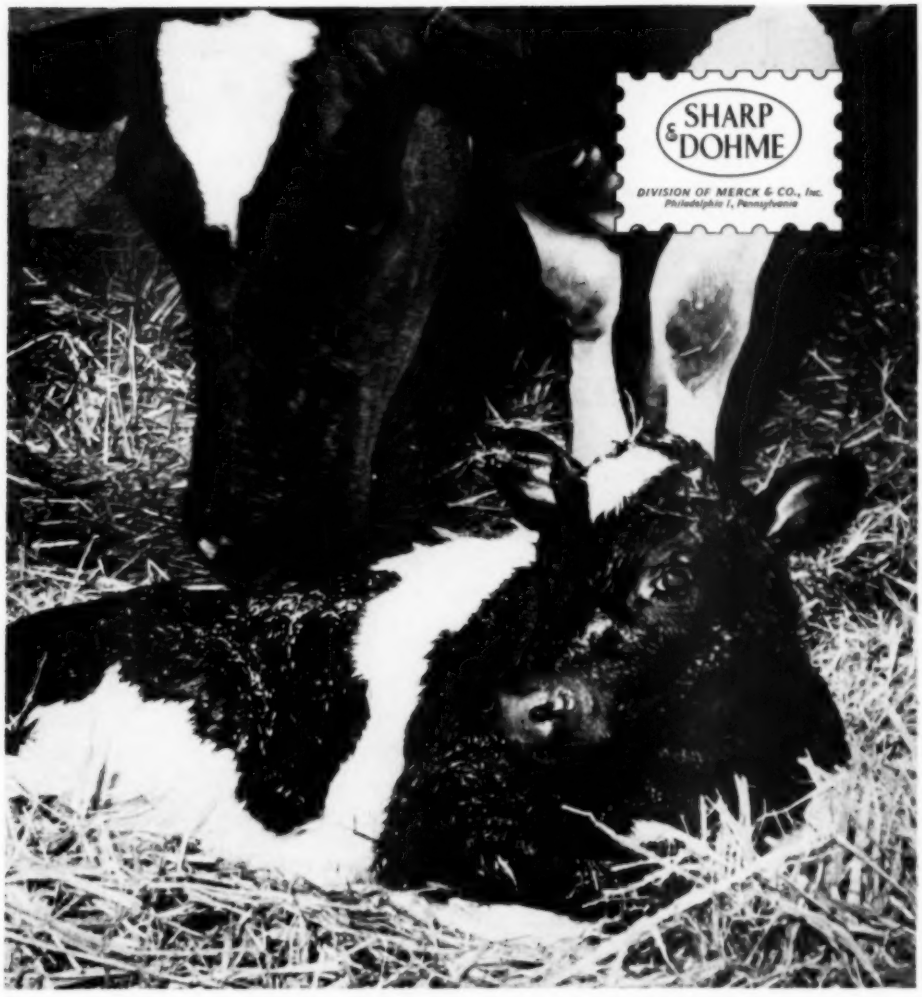
Fayette County Veterinary Association, Iowa, the third Tuesday of each month, except in July and August, at Pa and Ma's Restaurant, West Union, Iowa. Donald E. Moore, Box 178, Decorah, Iowa, secretary.

Florida, North-East Florida Veterinary Medical Association, the second Thursday of each month, time and place specified monthly. J. O. Whiddon, 829 San Marco Blvd., Jacksonville, Fla.

Greater St. Louis Veterinary Medical Association, the first Friday of the month at the York Hotel, Sixth and Market Streets. Luther E. Fredrickson, Room 11, Municipal Courts Bldg., St. Louis, Mo., secretary.

Houston Veterinary Medical Association, Houston, Texas, the first Thursday of each month.

(*Continued on p. 36*)



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(COMING MEETINGS—*continued from p. 34*)

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Illinois Valley Veterinary Medical Association, the second Sunday evening of even-numbered months at the Jefferson Hotel, Peoria, Ill. S. M. McCully, Lacon, Ill., secretary.

Indiana Tenth District Veterinary Medical Association, third Thursday of each month. L. A. Snider, New Palestine, Ind., secretary.

Jefferson County Veterinary Society of Kentucky, Inc., the first Wednesday evening of each month, in Louisville or within a radius of 50 miles. E. M. Lang, 716 E. Broadway, Louisville, Ky., secretary.

Kansas City Small Animal Hospital Association, the first Monday of each month, at the Hotel Continental. T. M. Eagle, Parkville, Route 2, Mo., secretary.

Kansas City Veterinary Medical Association, the third Tuesday of each month, in the Hotel Continental, 11th and Baltimore, Kansas City, Mo. K. M. Curts, 70 Central Ave., Kansas City 18, Kan., secretary.

Kern County Veterinary Medical Association, the first Thursday of each month. Richard A. Stiern, 17 Niles St., Bakersfield, Calif., secretary.

Keystone Veterinary Medical Association, the Philadelphia County Medical Society Building, 301 S. 21st Street, Philadelphia, Pa., on the fourth Wednesday of each month. Raymond C. Snyder, 39th and Woodland Ave., Philadelphia 4, Pa., secretary.

Kyowva Veterinary Medical Association, the second Thursday of each month in the Hotel Prichard, Huntington, W. Va., at 8:30 p.m. Karl Mayer, 1531 Fourth Ave., Huntington, W. Va., secretary.

Maricopa County Veterinary Association, the second Tuesday of each month. Charles J. Prchal, 1722 East Almeria Road, Phoenix, Ariz., secretary.

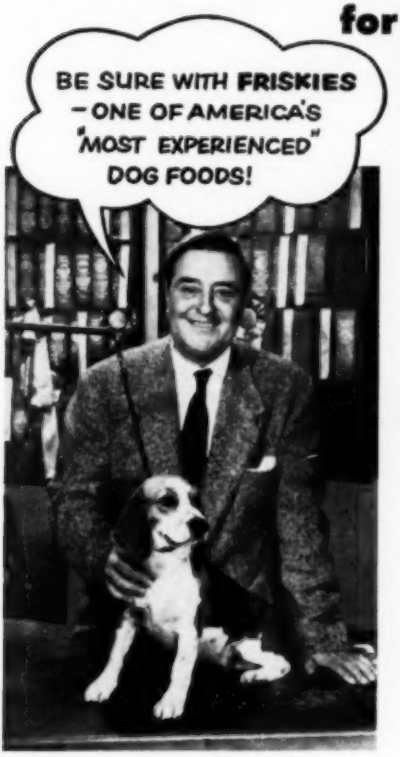
Metropolitan New Jersey Veterinary Medical Association, the third Wednesday evening of each month from September through May, at the Academy of Medicine of Northern New Jersey, 91 Lincoln Park South, Newark, N. J. Myron S. Arlein, 2172 Millburn Ave., Maplewood, N. J., secretary.

Michiana Veterinary Medical Association, the second Thursday of each month, at Hotel LaSalle, South Bend, Ind. Bruce Hostrawser, 2621 Mishawaka Ave., South Bend, Ind., secretary.

Michigan, Southeastern Veterinary Medical Society. Herman Kiefer Hospital, Detroit, Mich., the second Wednesday of each month from October through May.

(*Continued on p. 38*)

Here's the **True-Type** meal ...tested and proven for 21 years!



IT'S NO SURPRISE that so many people who raise dogs for a living feed the famous Friskies formula with confidence!

THESE KENNEL OWNERS know that Friskies–a *true-type* meal backed by Albers 50 years' experience in animal nutrition–has been fed successfully and thoroughly checked with *generations* of dogs!

THEY KNOW, TOO that Friskies combines 19 separate, high quality ingredients...chief of which is meat meal and bone meal...in a complete food that provides variety at every meal. And they've seen how dogs love that good "meaty" smell and taste!

"The Meal of Champions"

Meal and Cubes in 2, 5, 10, 25 and 50-Lb. Sizes.

ALL TYPES OF FRISKIES CONTAIN CHLOROPHYLLIN TO CONTROL DOG ODORS

TESTED FOR GENERATIONS! Friskies – based on Albers 50 years' experience in animal nutrition – has been checked and tested on dogs of all sizes and types. At the Friskies Kennels on the famous Carnation Milk farm, generations of healthy, happy dogs have been raised on a diet of Friskies *alone*.

FRISKIES CUBES...in the same famous formula as meal...are crunchy, bite-sized morsels that exercise your dog's teeth and gums. No mixing is required. Nothing to add–not even water!

KEEP YOUR DOG FRISKY WITH

Friskies

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Partners
with the Veterinarian
to give the most
DEPENDABLE PROTECTION

SURELY the stock-owner's best protection against unnecessary loss is the professional administration of quality products by the veterinarian. The veterinarian and Grain Belt Supply are partners . . . team-mates in the job of bringing the farmer protection he can depend upon.

The veterinarian's scientific training and professional knowledge demands a high degree of excellence in the products he uses. Grain Belt Supply Company is proud of its record of over thirty years' continuous service to the veterinarian.

Grain Belt
ANTI-HOG CHOLERA **SERUM**
HOG CHOLERA **VIRUS**

- **POTENT**
- **EFFECTIVE**
- **PROVED DEPENDABLE**

* Produced for the exclusive use of the Graduate Licensed Veterinarian

Grain Belt Supply Company
4901 SO. 33RD STREET, OMAHA, NEBRASKA
Member, Associated Serum Producers, Inc.

(COMING MEETINGS—*continued from p. 36*)

Mid-Coast Veterinary Medical Association, the first Thursday of every even month. George McCollister, 145 S. Spring St., Los Angeles 12, Calif., secretary.

Milwaukee Veterinary Medical Association. Wisconsin Humane Society, 4150 N. Humbolt Ave., Milwaukee, Wis., the third Tuesday of each month. Kenneth G. Nicholson, 2161 N. Farwell Ave., Milwaukee, Wis., secretary.

Mobile-Baldwin Veterinary Medical Association, the first Tuesday of each month at the Hotel Admiral Simmes, Mobile, Ala. C. Eric Kennedy, Mobile, Ala., secretary.

Monterey Bay Area Veterinary Medical Association, the third Wednesday of each month. Lewis J. Campbell, 66 Marion Ave., Salinas, Calif., secretary.

New Castle County Veterinary Society, the second Wednesday of each month at 9:00 p.m. in the Hotel Rodney, Wilmington, Del. Harold Roberts, Paper Mill Road, Newark R3, Del., secretary.

New York City, Veterinary Medical Association of, the first Wednesday of each month at the New York Academy of Sciences, 2 East 63 St., New York City. C. R. Schroeder, Lederle Laboratories, Inc., Pearl River, N. Y., secretary.

Northern New Jersey Veterinary Association, the fourth Tuesday evening from September through June, at the Casa Mana Restaurant, Cedar Lane, Teaneck, N. J. Robert R. Shomer, 1680 Teaneck Road, N. J., secretary.

Northern San Joaquin Valley Veterinary Medical Association, the fourth Wednesday of each month. Tom Hagan, Gen. Del., Escalon, Calif., secretary.

Oklahoma County Veterinary Medical Association, the second Wednesday of every month except July and August. W. C. Schilb, 4312 N. W. 23rd St., Oklahoma City, Okla., secretary.

Orange Belt Veterinary Medical Association, the second Monday of each month at 7:00 p.m. in the Antlers Hotel, San Bernardino, Calif. R. E. Hoadley, Coachella, Calif., secretary.

Orange County Veterinary Medical Association, bi-monthly. Donald E. Lind, 2643 N. Main, Santa Ana, Calif., secretary.

Peninsula Veterinary Medical Association, the third Monday of each month. P. H. Hand, Box 1035, Millbrae, Calif., secretary.

Piedmont Veterinary Medical Association, the last Friday of each month at 7:00 p.m. in Mull's Motel in Hickory, N. Car. G. V. McCranie, Hickory, N. Car., secretary.

Pima County (Arizona) Veterinary Medical Association, the third Wednesday of each month.

(*Continued on p. 40*)

It takes all three* to guard your animals' health

This Squibb advertisement is one of a series, stressing proper diagnosis by veterinarians. It appears in The Farm Quarterly, Farm Journal, and Successful Farming

* *Skilled services of your veterinarian*
* *Good management practices*
* *Effective, reliable drugs*

Your herds' health and vigor depend, first of all, on careful management . . . on your special skill in breeding, feeding, care and sanitation.

But today, due to constant demands for higher production, their health also depends more than ever on the skills of two other specialists – your veterinarian, and your veterinary drug manufacturer.

With great forward strides in veterinary medicine, your veterinarian plays a vital role in helping you solve complex health and disease problems.

His special scientific skill . . . his thorough knowledge of new developments . . . are indispensable in diagnosing and treating your livestock.

As a leading manufacturer of veterinary products . . . Squibb contributes essential skills of precision and accuracy in producing effective, reliable drugs. Squibb also contributes skills of sound, scientific veterinary research.

Marching shoulder-to-shoulder with you . . . your veterinarian and Squibb are your staunch allies in helping keep your livestock healthy, thrifty, and more profitable.

CONSTANT RESEARCH
Squibb scientists are constantly seeking and discovering new and better drugs . . . to aid your veterinarian in bringing better health to your livestock.

E. R. SQUIBB & SONS
Division of Mathieson Chemical Corporation
745 Fifth Avenue, New York 22, N. Y.

For prompt, accurate diagnosis, always consult your veterinarian.

SQUIBB – A NAME YOU CAN TRUST

(COMING MEETINGS—*continued from p. 38*)

in Tucson. R. W. Adami, 2103 S. 6th Ave., Tucson, Ariz., resident secretary.

Portland (Oregon) Veterinary Medical Association, the second Tuesday of each month, in the Auditorium of the Upjohn Company. Victor T. Oliver, 9705 S.W. Barbur Blvd., Portland 19, Ore., secretary.

Redwood Empire Veterinary Medical Association, the third Thursday of each month. H. M. Strandberg, 203 D St., Petaluma, Calif., secretary.

Roanoke-Tar (N. Car.) Veterinary Medical Association, the first Friday of each month, time and place specified monthly. C. B. Randall, Kinston, N. Car., secretary.

Sacramento Valley Veterinary Medical Association, the second Wednesday of each month. S. M. Foster, 430 College, Woodland, Calif., secretary.

Saginaw Valley Veterinary Medical Association, the last Wednesday of each month. F. Ferguson, 1702 S. Dort Highway, Flint, Mich., secretary.

San Diego County Veterinary Medical Association, the fourth Tuesday of each month. Warren J. Dedrick, 904 S. Lemon, El Cajon, Calif., secretary.

Santa Barbara-Ventura Counties Veterinary Medical Association. Friday evenings every sixth week. Dee Wodars McDermott, 5879 Hollister, Coleta, Calif., secretary.

Southern California Veterinary Medical Association, the third Wednesday of each month. R. W. Sprowl, 11756 San Vicente Blvd., Los Angeles 49, Calif., secretary.

South Florida Veterinary Society, the third Tuesday of each month, at the Seven Seas Restaurant, Miami, Fla. E. A. Majilton, 1093 N. E. 79th St., Miami, Fla., secretary.

Tulsa Veterinary Medical Association, the third Thursday of each month, in Director's Parlor of the Brookside State Bank, Tulsa, Okla. John Carnes, Muskogee, Okla., secretary.

Foreign Meetings

Second Pan American Congress of Veterinary Medicine. Sao Paulo, Brazil, April 3-10, 1954. Dr. Joao Soares Veiga, chairman; Dr. Virginia Buff D'Apice, secretary general, P.O. Box 7064, Sao Paulo, Brazil.

40 years of service to the veterinary field

When you buy, buy from an ethical house

Serving The Southern Veterinarian
For Over Twenty Years

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Atlanta, Ga.

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MAKE SURE THE X-RAY MACHINE YOU BUY REFLECTS SOME THOUGHT OF THE VETERINARIAN IN ITS DESIGN Don't make the mistake of purchasing a medical outfit designed for use on the human body.

Write for Prices and Terms. Use This Coupon.

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ANIMAGRAPH

TRADE MARK REG. U.S. PAT. OFF.
U.S. PAT. NO. 2,323,704 JULY 6, 1943

BEWARE OF IMITATIONS

4 Outfits in **1** Exclusive Veterinary Design

FLUOROSCOPY (motion pictures)
RADIOGRAPHY (still pictures)
THERAPY (for skin treatment)
PORTABLE (large animals outside)

The only complete x-ray machine designed from the ground up for the exclusive use of the veterinarian.

THE BETTER GRADE SMALL-ANIMAL HOSPITALS INSTALL ANIMAGRAPHS

You owe your clients complete service including x-ray. You owe yourself safe, efficient apparatus designed especially for your use.
The Animagraph is a necessity to public health.

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Kindly send me descriptive information, including prices and terms, on the Campbell X-Ray Animagraph.

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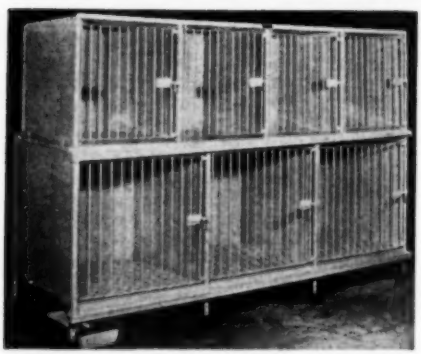
DE LUXE CAGES AND DOG DRYER



IMPROVED 7-CAGE DE LUXE DRAIN UNIT

The small size is 7½ feet long with 3-30" cages in bottom and the large unit 9 feet long with 3-36" cages in bottom.

Also available in removable tray style, or plain flat floor style without gutter drains in front.

Our units are available in 3, 5, 7 or 12 cage units, or any combination you need.

Write for NEW cage booklet; also DRYER FOLDER
The 1953 price list is now available

Baltimore Wire & Iron Works
514 N. Jasper Street Baltimore 1, Maryland

Our improved dog dryer with entirely transparent doors and larger blower is proving most satisfactory to our numerous users. Many have recommended them to their friends saying "it's doing a wonderful job."

Provides an accurate pattern against which to cut with knife or razor blade. Fits firmly, cannot move or slip when clamped into position. Made of non-rusting, light, cast aluminum, highly polished. Lasts a lifetime with minimum care. Simplicity of design and construction reduces possibility of breakage or mechanical failure. Forms immediately available to provide distinctive marking of these breeds:

Boxer — postpaid $15.00
Boston Terrier — postpaid $15.00
Great Dane — postpaid $15.00
Doberman — postpaid $15.00
Set of above four — postpaid $50.00

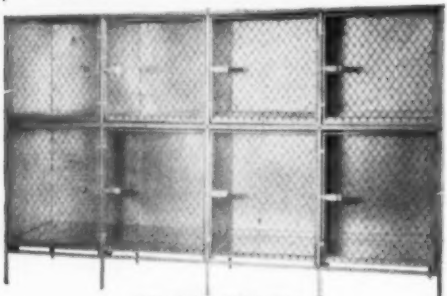
These patented "championship" forms are patterned after markings of winners of top honors in show competition. Forms for other breeds made on special order. Sold to veterinarians only. Send check or money order.

MacALLAN LABORATORIES
Route No. 2, Box 420 Lansing, Michigan

Kennel Cage Units

of Wire Mesh and Metal

IN TWO TIERS: 4, 6, and 8 cage units
IN THREE TIERS: 6, 9, and 12 cage units
Sanitary, durable, and easily maintained; galvanized materials; removable pans; hand woven wire mesh doors, maximum light and ventilation; sized for dogs and cats; removable partitions; shipped crated; easily assembled.



THE EIGHT CAGE UNIT
manufacturers

EAST RIVER WIRE WORKS
39-40 Twenty-first St., Long Is. City 1, N.Y.

CLASSIFIED ADVERTISEMENTS

Twenty-five words or less, $2.50; 8 cents for each additional word. Replies sent in care of the JOURNAL, 25 cents extra.

Remittance must accompany order.

Deadline for want ads 8th of month preceding date of issue.

Names of classified advertisers using key letters can not be supplied. Address your reply to the key letters, c/o JOURNAL of the AVMA, 600 S. Michigan Ave., Chicago 5, Ill., and it will be transmitted to the advertiser.

Wanted—Veterinarians

Veterinarian wanted as assistant in small animal practice. Address Dr. Allan A. Marks, 17641 West McNichols Rd., Detroit 35, Mich.

Veterinarian wanted as an assistant in small animal hospital in the vicinity of San Diego. California license required. Good starting salary. Address "Box M 3," c/o JOURNAL of the AVMA.

Veterinarian wanted as assistant in small animal practice. License in Virginia required. Salary, plus apartment. Address "Box M 6," c/o JOURNAL of the AVMA.

Veterinary assistant wanted; steady work, good pay. Predominantly large animals, hogs, poultry; some small animal work. Good town, churches, and schools. Wire or telephone collect. Address Dr. B. J. Lattimer, Lattimer and Livingston, Springfield, Minn.

Veterinarian wanted for position on staff of a California state college. Graduate of an AVMA-approved college, and capable of passing California state board examination. Address "Box M 7," c/o JOURNAL of the AVMA.

Veterinarian wanted for association in active, predominantly large animal practice in New Jersey. Chance to gain foundation in sterility work. Salary and commission. Address "Box M 8," c/o JOURNAL of the AVMA.

Remittance must accompany advertisement

Assistant wanted for small animal hospital. Compatible arrangement will lead to percentage, partnership, or purchase. Connecticut license required. Address "Box M 13," c/o JOURNAL of the AVMA.

Wanted—Positions

A 27-year-old veterinarian, graduated Hannover, 1951, seeks employment in the United States as assistant to a veterinarian. Speaks English and French. Presently employed in a pharmaceutical factory in Hannover. Address "Box M 5," c/o JOURNAL of the AVMA.

(*Continued on p. 44*)

Mineral Deficiencies?

Recommend STERLING TRACE-MINERAL BLUSALT

THROUGHOUT THE COUNTRY, local feed sometimes lacks essential trace minerals. Where this is true, field reports show that when farm animals are given STERLING Trace-Mineral BLUSALT they produce better, grow bigger faster, bring more profits. Sterling Blusalt provides *vital salt* to aid digestion of protein, carbohydrates and fats *plus* these trace minerals:

Cobalt—essential for Vitamin B_{12}—guards against loss of appetite, permits maximum body gains and helps maintain normal level of hemoglobin in the blood.

Manganese—necessary for successful growth, reproduction, lactation and bone development.

Iodine—to help prevent simple goiter.

Iron—essential as part of hemoglobin to every organ and tissue of the body.

Copper—necessary with iron for hemoglobin formation.

Zinc—growth producing and a part of enzymes.

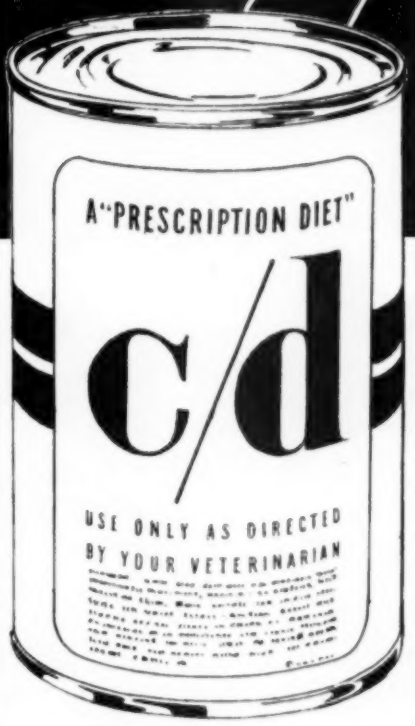
Recommend that Blusalt be kept before farm animals at all times—and mixed with feed according to directions on the bag.

STERLING
TRACE-MINERAL
BLUSALT

100-lb. bags
50-lb. blocks
4-lb. liks

International Salt Co., Inc.
Scranton, Pa.

Introducing .. A New Member of the Diet Family



This new product for cats joins the Hill family of Prescription Diets which includes:

k/d — for Nephritic Conditions
r/d — for Obesity Correction
p/d — for Reproduction & Lactation
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Available only to Graduate Veterinarians

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HILL PACKING COMPANY

P.O. Box 148 Topeka, Kansas

Sold only to Graduate Veterinarians

FUNGASARC

for the effective treatment of skin conditions

Destroys fungi; sarcoptes scabei canis; demodex canis; mites; fleas; lice. Repels ticks. Non Staining; not greasy; has no objectionable odor, destroys odors of external origin. Non Toxic; may be used daily in recommended dilution. Concentrated; one gallon makes four.

Gallon	Quart
$13.95	$4.00
Makes 4 gallons	Makes a gallon

Available nationally through well known Distributors

Osco Chemical Company, Inc.

P.O. Box 2157, Atlanta 1, Georgia

New **electric** branding iron uses 110 volt current, heats in just 90 seconds!

Here's the neatest, slickest thing in branding irons yet. This new NICHOLSON *electric* branding iron heats in only 90 seconds on regular 110 volt AC-DC current! Just plug it into house or barn wiring. Won't smoke or corrode. Uses the same fast-heating elements they use on the newest electric ranges. Element is formed into letter B, 3½" high. Supplied complete with 6 foot cord for $21.50. Special 25 foot extension cord, $6.00. Prices FOB Denver. All NICHOLSON precision veterinary equipment is guaranteed—money back if you aren't satisfied.

Order today from
NICHOLSON
Manufacturing, Inc.
Box 7115,
Denver 6, Colorado

NICHOLSON
precision veterinary equipment

(CLASSIFIED ADS—*continued from p. 42*)

Woman, graduate of approved school, small animal experience, seeks position in small animal or mixed practice leading to partnership or purchase. Address "Box L 4," c/o JOURNAL of the AVMA.

Position wanted by graduate veterinarian (1951) from Messina University, Italy. Six months' experience with small animals and cattle. Married, 27 years old, native born citizen. Ready to travel. Address "Box M 11," c/o JOURNAL of the AVMA.

Public health veterinarian, four years' experience in broad public health program, two years' executive position, experienced in practice, will accept foreign or domestic position. Married, age 34, veteran. Address "Box M 12," c/o JOURNAL of the AVMA.

Graduate of AVMA-approved school, 1951, desires position on staff of animal hospital, small animal, or mixed practice. Licensed in California, Oregon, and several Middlewest states. Experienced. Single. Address "Box M 18," c/o JOURNAL of the AVMA.

Wanted—Practices

Experienced veterinarian wants to buy or lease busy small animal practice in California. Veteran, age 32. Would also consider partnership; give full details. Address "Box L 27," c/o JOURNAL of the AVMA.

Self-employed veterinarian desires to work with a veterinarian, or to buy into a mixed or small animal practice as a partner. Married; veteran; 30 years old. Address Dr. Ronald B. Middleton, Walnut, Ill.

Remittance must accompany advertisement

Desire to purchase or lease, with option to buy, established small animal practice in California. Will be discharged from Veterinary Corps in January; have license in California, and several years of experience. Am graduate of an accredited school, and have a family. Address "Box M 15," c/o JOURNAL of the AVMA.

Wanted to buy, or lease with option to buy, mixed practice. Graduate of AVMA-approved school, 1950. Address "Box M 19," c/o JOURNAL of the AVMA.

For Sale or Lease—Practices

Mixed practice for sale including completely modern small animal hospital; 80% small animals — 20% large. Located in North Carolina; excellent clientele. $20,000 plus drug inventory. Must sell immediately; other interests. Address "Box K 27," c/o JOURNAL of the AVMA.

(*Continued on p. 48*)

WHITE'S ANIMAL CASTRATION

A new textbook for TEACHERS, STUDENTS and PRACTITIONERS.

Price $7.50

For sale by book dealers, also by the Author, George Ransom White M.D., D.V.M., P. O. Lock Box 901, Nashville, Tennessee.

FIRST DOG BISCUIT OFFICIALLY APPROVED BY "VETS"

TESTED
AMERICAN VETERINARY MEDICAL AND ANIMAL HOSPITAL ASSOCIATIONS
APPROVED

Gro-Pup T-Bone Form is the only dog biscuit to win this official approval.

New Gro-Pup T-Bone Form... the "Protective Treat"

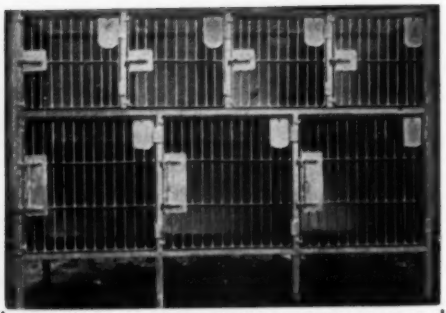
Not just a reward food, this chewy appetizing T-Bone biscuit contains the 30 vital elements dogs are known to need for their health.

Recommend the only officially approved dog biscuit as an important diet supplement for *regular* protective feeding.

GRO-PUP

PROTECTIVE DOG FOOD

Made by the Kellogg Company, Battle Creek, Michigan



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MANUFACTURED IN 5, 7, AND 8, CAGE UNITS. EQUIPPED WITH BALLBEARING CASTERS AT NO EXTRA COST. MINOR CHANGES IN DESIGN OPTIONAL. SLIDING PANELS BETWEEN CAGES IF DESIRED. STEEL-BARRED DOORS AND ESCAPE-PROOF LATCHES. NEW TYPE DOOR FRAMES WILL NOT COLLECT DIRT. VENTILATING STRIP IN LOWER CAGES. GALVANIZED STEEL USED.

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Descriptive Literature

TERMS MAY BE ARRANGED IF DESIRED

A lifetime of service and guaranteed by one of California's oldest iron works.

RIVERSIDE IRON WORKS
5422 Mission Blvd. Riverside, California

SO EASY TO
VACCINATE
WITH THIS SYRINGE

COMPLETELY AUTOMATIC
NO CHANCE FOR ERROR

● Use this **Tomac-Austin Syringe** with unfailing accuracy every time. No guesswork because proper dosage is *automatically* pre-set. Simply adjust set-screw to desired dose and syringe is ready for successive injections, each as accurate as first.

This sturdy and simple syringe *quickly pays for itself* because it *completely eliminates vaccine* waste. Designed for years of unfailing service with guarantee of perfect materials and workmanship.

6 SIZES FOR LIVESTOCK and POULTRY

MODEL NO.	CAPACITY	DOSAGE	PRICE
3980	2cc	(⅛cc, ¼cc)	$11.00
3981	6cc	(½cc, 1cc)	11.00
3982	10cc	(1cc, 5cc)	12.00
3983	20cc	(1cc, 5cc)	12.50
3983A	20cc	(2cc, 5cc)	12.50
3984	50cc	(2cc, 5cc)	13.00

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American Hospital Supply corporation
VETERINARY DEPARTMENT
2020 Ridge Avenue • Evanston, Illinois

Correspondence

July 22, 1953

The secretary,
American Veterinary Medical Association,
Royal York Hotel,
Toronto.
Dear sir:

I wish to express my thanks to the AVMA and to the people in charge of public relations in particular for the assistance given me during the convention.

The efficiency and good feeling which has been evident in the press room and the prompt interest of the delegates in ideas emanating from the press has made the coverage of this meeting a rare pleasure.

Very truly yours,
Ron Kenyon,
Toronto Telegram.

Tarbor, N.C.
July 18, 1953.

The Editor,
Journal of the AVMA,
Chicago, Ill.
Dear Sir:

It is my desire to commend Dr. Wing Q. Chin of Davis, Calif., on his excellent essay, "Veterinary Public Relations," in the July, 1953, JOURNAL. No doubt a great deal of time and thought was given to it and the result is a well-written treatise on an important subject. . . .

I do not wish to minimize what Dr. Chin has written. All he says is true and well expressed and he brings forth more ideas than I have thought of after being a veterinarian for thirty-nine years. But as far as veterinary public relations are concerned in North Carolina (and I believe it would be more or less applicable to every state), in my humble opinion, he has overlooked a very important source of publicity. I agree that the individual practitioner does more than anyone else, or any organization, to bring the veterinary profession in a favorable light to the . . . public. And to an increasing extent the American Veterinary Medical Association, state and regional veterinary organizations, and the Associated Serum Producers are doing important publicity work. But for down-to-earth, barnyard veterinary public-

(Continued on p. 52)

Send for FREE 36-page Treatise on
CARROT OIL VITAMINS

Details the advantages of carrot oil vitamins when used in feeds to improve breeding results; to destroy oxidized milk flavors; and to promote general good health and glossy coats. Contains much information. Replete with data and references. Send for it today
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Dept. 251-M, South Whitley, Indiana

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- . . . will not cause inflammation of the gastrointestinal tract due to licking
- . . . does not contain iodine, mercury or phenol
- . . . relieves itching, discourages scratching
- . . . can safely be recommended for home or farm use
- . . . pleasant to apply, does not sting or dry skin on hands
- . . . sanitizes and deodorizes

EXTRA EFFICACY

- . . . residual antibacterial and antifungal action lasts for hours on hands, skin, equipment and glass, metal, tile, plastic and enamel surfaces
- . . . penetrates deeply into pores, cracks, abrasions
- . . . has fresh, clean odor
- . . . destroys odors, does not mask them
- . . . does not stain—is not greasy

topical germicide
cuts—burns—abrasions
fungus infections
obstetrical preparation
wet dressings
skin irritations
operative antisepsis
preparation for injections
hand disinfection
instrument disinfection
disinfecting, deodorizing cages
disinfection of thermometers
disinfection of syringes

Bactine: Available in 1-gallon, 1-pint and 6-ounce bottles through your regular supplier or we will assist you in ordering.

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in treating Splints, Spavins, Curbs, Sidebones, Inflamed Tendons, Bursal Lameness, Etc.

Single Bottle.... $2.00
3 and 1 free.....5.00
6 and 2 free.....9.00
12 and 4 free....17.00
24 and 4 free....28.00

Advantages of using "M.A.C."

Can be applied in a few seconds.
Only one application in 24 hours.
Does not irritate the skin.
More prompt than blisters.
More humane than firing.

Write for Descriptive Price Sheet of Veterinary Dispensing Products.

CARTER-LUFF CHEMICAL CO.
Hudson, N. Y.

Equeron

Riboflavin and phenothiazine in a special fortified mineral-vitamin (Mineron) base.

Each tablespoonful furnishes 40 mg. Riboflavin and 30 grains phenothiazine, the daily dose recommended for prevention of periodic ophthalmia (moon blindness) and blood worms (strongyles) in horses. Contains sufficient vitamins and trace mineral elements to prevent rickets and other deficiencies.

Doz. 1 pound	13.20	5 pound can	4.75
25 pound drum	21.00	100 lb. drum	80.00

CURTS-FOLSE LABORATORIES

Select Pharmaceuticals for the Veterinary Profession since 1918

73 Central Avenue — Kansas City, Kansas

(CLASSIFIED ADS--*continued from p. 44*)

Small animal practice for sale in Chicago, including about $7,000 worth of all new equipment. Capable of grossing in excess of $30,000. Owner expects to be drafted soon; $5,000 down payment will handle. Excellent building, favorable lease; large modern apartment available. Address "Box H 3," c/o JOURNAL of the AVMA.

Large practice for lease or rent in southeast Virginia due to death of Dr. J. T. Wilson. Established 35 years; hospital, equipment, instruments, x-ray, inside kennels with central heat, and large outside runs. Will sell drugs. Available immediately. Address Mrs. J. T. Wilson, Hampton, Va.

Established small animal practice for sale. Concrete, heated hospital and 72 kennels with 30-ft. runs; insulated house and office; equipment. $46,000; one half in cash. Address Mrs. O. E. McKim, 425 Boston Post Road, Port Chester, N. Y.

Mixed practice for sale in southwestern Oklahoma. Complete modern hospital, kennel, and large animal facilities. Only veterinarian in large territory; could support two men. Gross, $23,000; price, $9,000, $5,000 down, balance on terms. Address "Box M 1," c/o JOURNAL of the AVMA.

Excellent small animal practice for sale, Hollywood, Calif.; 50 cages, 18 outside runs, x-ray, drugs, and equipment. No real estate; good lease. Priced at less than one year's gross. Address "Box L 2," c/o JOURNAL of the AVMA.

(*Continued on p. 50*)

PARAZENE

A New and Effective Worm Capsule!

EVSCO

For removal of Roundworms, Hookworms and Tapeworms from Dogs

EACH CAPSULE CONTAINS:	2½ Lb. Body Weight	10 Lb. Body Weight	25 Lb. Body Weight
Bis (5-chloro-2-hydroxy phenyl) methane	250 MG	1.0 GM	2.5 GM
Methylbenzene	300 MG	1.2 GM	3.0 GM
Cascara Sagrada, Extract U.S.P.	25 MG	0.1 GM	0.25 GM

100-2½ lb. Size Caps $2.70 . 100-10 lb. Size $8.50

ETHICAL VETERINARY SUPPLY CO.

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GUIATOL POWDER

One pound of Arnold Guiatol Powder when mixed with one gallon of water is equal to one gallon liquid expectorant. A pint of this stock solution will make from 25 to 50 gallons.

Ideal for respiratory conditions of swine, cattle, poultry, horses, dogs and cats. Arnold Guiatol contains potassium guaiacol sulfonate, ammonium chloride, potassium dichromate and Niacin.

MILK OF MAGNESIA POWDER

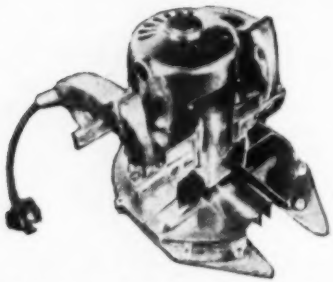
One pound of Arnold Milk of Magnesia Powder mixed with one gallon of water is equal to one gallon liquid milk of magnesia. This Arnold product is anti-acid, anti-ferment and a mild laxative for bovine following engorgement or other digestive disorders. It is especially convenient to carry in the car and mix on the farm.

GUIATOL POWDER		Your low unit cost
One pound jar		$2.25
1 dozen	$22.50	$1.88
3 dozen	$64.12	$1.78
MILK OF MAGNESIA POWDER		
1 doz. 12 oz. cans	$9.00	$ .75
3 doz. 12 oz. cans	$25.65	$ .72

ORDER TODAY

Arnold LABORATORIES

A Sweeping Advance in Dehorning Cattle



Wynkoop's Universal Horn Saw

UNIVERSAL HORN SAW removes horns easily when growing at improper angles

UNIVERSAL HORN SAW lessens pain and shock to animals

UNIVERSAL HORN SAW eliminates possibility of splintering the horn base

UNIVERSAL HORN SAW eliminates artery pulling; no tieing of arteries with string or rubber bands is necessary

YES! UNIVERSAL HORN SAW is the answer for fast, safe, easy method of dehorning cattle.

Wynkoop Horn Saw Co.
Canal Winchester, Ohio

(CLASSIFED ADS—*continued from p. 48*)

Large animal, dairy practice for sale in northern Illinois; modern home. Grossing over $25,000; price, $19,000; suitable terms. Address "Box M 2," c/o JOURNAL of the AVMA.

Mixed veterinary practice for sale. Lucrative and interesting, with exclusive clientele where there is need for a capable and energetic young veterinarian. House and completely equipped 23-cage small animal hospital and individual runs. Located in the beautiful resort area of Sullivan County in southeastern New York. Easy terms. Address "Box M 4," c/o JOURNAL of the AVMA.

Outstanding small animal hospital for sale or lease in wealthy Southern California community. Completely modern and fully appointed; grosses over $50,000, sale price $100,000. Easy terms. Buyer must be above average ability and capable of pleasing high grade clientele. Reason for sale, other business interests. Address "Box M 9," c/o JOURNAL of the AVMA.

Mixed practice for sale in Middlewest. Established over 30 years in town over 20,000 population. Gross income over $20,000; sale price, $15,000 includes real estate. Terms. Could be two-man practice. Address "Box M 10," c/o JOURNAL of the AVMA.

Lucrative mixed practice for sale in Southern California; includes new brick home with small animal clinic. Down payment, $10,000; balance monthly at 6% interest. Total price, $29,500. Address "Box M 17," c/o JOURNAL of the AVMA.

(*Continued on p. 54*)

STRONTIUM MEDICAL APPLICATOR
. . . for Beta Ray Therapy

Tracerlab's unique Strontium Medical Applicator is a simple, compact instrument which allows *beta* rays to be used in the treatment of such eye conditions as corneal inflamatory lesions of dogs and superficial ocular neoplasms of horses and cows.*

The applicator's source of *beta* radiation, Strontium-90, has a half life of about twenty-five years and gives a dosage rate of between 35 and 45 Roentgens-beta-equivalent per second at the surface of the applicator. A 4" D. x ¼" sliding plastic shield protects the user's hand. The applicator is housed in a walnut case having a source shield; a second, portable shield is provided to hold the instrument when out of the case.

The standard RA-1A Strontium Applicator contains a forty millicurie source, but may be ordered with strengths of up to one hundred millicuries, upon approval of the United States Atomic Energy Commission.

We will be happy to send a copy of *"Beta Ray Therapy in Ocular Diseases of Animals"** on request and to supply appropriate A.E.C. forms with instructions for completing them.

* *Beta Ray Therapy in Ocular Diseases of Animals*, Catcott, et al; Journal A.V.M.A., March, 1953; p. 172-175.

Photos - Jrnl. A.V.M.A., March '53

Tracerlab® INC.
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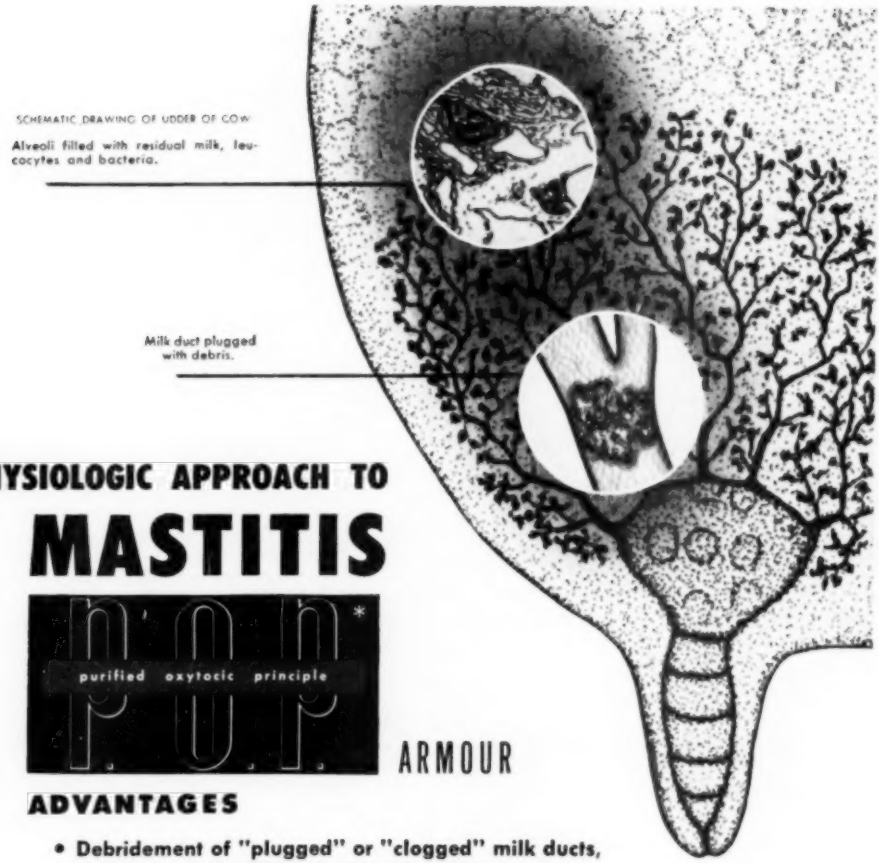
SCHEMATIC DRAWING OF UDDER OF COW
Alveoli filled with residual milk, leucocytes and bacteria.
Milk duct plugged with debris.

PHYSIOLOGIC APPROACH TO MASTITIS

POP* purified oxytocic principle

ARMOUR

ADVANTAGES

- **Debridement of "plugged" or "clogged" milk ducts, without pressor effects on blood vessels.**
- **Flushing effect on the entire duct system.**
- **Reduces the dilution of therapeutic agents by eliminating residual milk and exudates.**
- **More efficient penetration of sulfonamides, antibiotics, or other agents to source of infection and throughout the infected quarter.**
- **Early reduction of temperature and edema.**
- **Early return of appetite and normal appearing milk.**
- **Return of normal milk production in 24 hours, in many cases.**
- **Economical.**

*Armour's trade name for veterinary purified oxytocic principle preparation. Double U.S.P. strength.

Sold to Graduate Veterinarians Only

VETERINARY ARMOUR LABORATORIES

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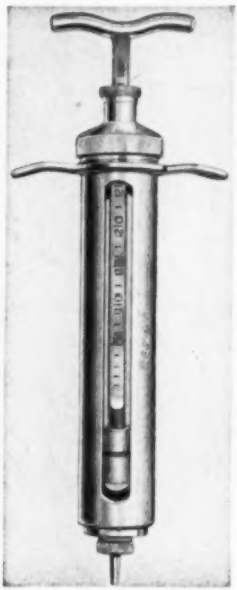
Ranch Record Veterinary Syringe



Superior quality veterinary syringes—Choice of ground glass barrel with metal plunger or rubber packing—Accurate dosage and smooth operation always assured.

Inexpensive replacement parts available.

Inquire at your nearest veterinary dealer or wholesaler concerning this outstanding product.

Sizes 2 cc. to 40 cc.

Boston Record Syringes

High quality syringe consisting of graduated, ground, resistance glass barrel with nickel silver plunger and strongly constructed metal parts. No Washers—No Binding Rubber Packings to interfere with smooth operation. Easily disassembled for sterilization.

Low In Cost

Boston Record Syringes create sales for the dealer and satisfaction for the user.

Repair exchanges available.
Sizes 1 cc. to 150 cc.

Literature Upon Request

Boston Instrument Mfg. Co., Inc.

50 Thayer St., Boston 18, Mass.

(CORRESPONDENCE—*continued from p. 46*)

ity, the office of state veterinarian and the Bureau of Animal Industry of the U.S. Department of Agriculture have done and are doing more to promote good veterinary public relations than any other organization. And I say this as a private practitioner who has never worked for the state or federal governments.

The simple fact that there is a state veterinarian, a veterinarian employed by the state, is a tremendous boost to the profession and to the practitioner among his clientele. In cases of sporadic outbreaks of anthrax and blackleg, the state veterinarian . . . enters the picture and the farmer realizes that his local veterinarian belongs to the same profession that the state has dignified by employing some of its members. Forty years ago immunization of hogs against cholera was relatively new and the Bureau of Animal Industry sent veterinarians throughout the cholera regions to publicize this disease preventive and this gave prominence to the local practitioner.

The various eradication programs that the B.A.I. and state veterinary forces have . . . carried through have incidentally given great prestige and publicity to the veterinary profession. The campaigns against contagious pleuropneumonia and foot-and-mouth disease have been national advertisers for the veterinarian at government expense. In North Carolina and the South the eradication of the cattle tick brought to every cattle owner the fact that there was a veterinary profession. The great campaigns against tuberculosis and brucellosis, in which North Carolina led the way, by being the first state to be accredited, have been of tremendous publicity value to the profession. . . .

It was a veterinarian who tested or bled the cows, emphasizing to every cow owner in the state that this is a veterinarian's business. And this work continues, year in, year out, with the local practitioner called upon to test and bleed. All of this has been publicity *par excellence.*

Again, the fact that we have Army veterinarians in our horseless army is rather good publicity, showing what a versatile profession we have.

(*Continued on p. 53*)

BROKEN TEETH

—repaired in bottom clipper blades. Top and bottom blades sharpened to match. Save money—Guaranteed. Prices on Request

HIGHLY SPECIALIZED SHARPENING
Sales—Repairing on Oster and Stewart clippers.

Sharpened Blades Tested on Rabbit Fur

OSTER A-2 $7.75 STEWART $1.00

Prompt Service—Est. 17 years

MAIL TO NEWFOUNDLAND 9-3412

CLIPPER SERVICE OAK RIDGE NEW JERSEY

(CORRESPONDENCE—*continued from p. 52*)

Two or three years ago when there was some newspaper publicity about veterinarians being assigned to the Air Force, the editor of one of the daily North Carolina newspapers had an editorial wondering why the Air Force should have veterinarians. It was my pleasure to enlighten him, stating that the best-trained food inspectors in the nation are veterinarians.

Our government veterinarians, unconsciously and incidentally to their work, promote veterinary public relations and it does not cost the profession a cent.

Sincerely yours,
J. H. Brown, D.V.M.

REGISTERED **BURDIZZO** TRADE MARK

BLOODLESS CASTRATOR

ELIMINATES CASTRATION LOSSES — NO INFECTIONS — NO SHRINK — NO SCREW WORM RISKS!

HAVER-GLOVER LABORATORIES, KANSAS CITY, MO.

Sole Makers: LA "BURDIZZO" CO.
Corso Sebastopoli 187—TURIN (Italy)

READ THE DISTEMPER COMPLEX

By WHITNEY and WHITNEY

A compilation of the world's literature on this vexing problem. Eleven diseases which pass for "distemper" are carefully reviewed and discussed. Chapters on Carre's, Hard Pad, Housedog and Protozoan diseases, as well as material on Canine Infectious Hepatitis, Canine Influenza, and Tonsillitis. The book also deals with matters of prevention and treatment of the diseases of the complex, public health considerations, as well as presenting a handy diagnostic table for reference. You will discover in this volume facts which should assist you materially in answering questions that constantly arise concerning what was once known as "distemper" — a faulty but convenient category in which so many canine diseases were placed.

The authors have clarified the subject and have presented it in a way that advances veterinary medicine appreciably.

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HISTACOUNT BOOKKEEPING SYSTEM STILL CHAMP! BECAUSE...

- All the financial facts of each day are complete on one page—Income, Collections and Disbursements.
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- So simple to keep. No bookkeeping knowledge is required.
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F-10-3 • America's Largest Printers to the Professions

Mixed practice for sale in Massachusettes. Seven-room colonial house, with expansion attic, office, kennels, cement dog runs. Other interests, reason for selling. Address "Box M 14," c/o JOURNAL of the AVMA.

A golden opportunity for veterinarian who wishes to semi-retire in California. New home with small hospital for sale and a good net with little work. Terms. Address "Box M 16," c/o JOURNAL of the AVMA.

Long-established general practice for sale or lease in Northwest Iowa. Excellent town of 4,500; choicest livestock and farming community. Home, office, and hospital ideally located, fully equipped, recently remodeled. Easy payment; terms on balance; immediate possession. Address "Box M 20," c/o JOURNAL of the AVMA.

Small animal hospital near Los Angeles, for sale. No real estate; 40-animal capacity. Gross $26,000; $12,500 cash or $13,500 terms with $5,000 minimum down. Address "Box W 17," c/o JOURNAL of the AVMA.

Wanted to Buy

Wanted—old-type Hausman and Dunn equine emasculators with White's extra crushing attachment. Address "Box K 15," c/o JOURNAL of the AVMA.

Miscellaneous

Pregnancy Diagnosis—in mare from 45th to 150th day. Write for vials and mailing tubes. Price: $7.00; 2 or more tests, $6.00 each. Pregnancy Diagnostic Laboratories, H. S. Lames, D.V.M., Dysart, Iowa.

CANINE GENETICS, bloodlines, breeding, pedigrees—full data in Judy's "Principles of Dog Breeding." $4. Keep up on dogs through *Dog World* magazine, $3, yr., 5 yr., $10. Judy Publishing Co., 3323 So. Michigan Blvd., Chicago 16, Ill.

Clipper Blade Sharpening

Have your clipper blades sharpened by an expert with 28 years of practical factory training. We know how your blades must be ground to cut like new. Also clipper repairing. All work guaranteed to satisfy you or money back. Now serving veterinary colleges, and over 500 satisfied veterinarians. Why not you? 24-hour service. We ship insured prepaid. Avoid C.O.D. charges; enclose 75c for each set with blades. We are headquarters for Sunbeam Stewart labor-saving equipment. Allover, and Oster quality clippers and blades. Write for information on Oster, Stewart, and Allover quality clippers and products. Service Grinding and Supply Co., 903 Chicago St., Racine, Wis.

Bovine Prolapse Preventer—Payton Utero-Vaginal Prolapse Preventer. Quickly, easily applied to any size cow. Positive protection. Re-usable, non-irritating, sanitary. Noninterference with placenta release. Excellent for vaginal protrusion; dispensing. See article JOURNAL of the AVMA, December, 1951. Only $3.00; two for $5.00; six for $12.00. Prepaid. Dr. Jerome Payton, Morris, N.Y.

Special—Thermometers, 4-in. stubby, $6. doz., 5-in., ring top in cases, $9. doz.; adhesive tapes, 12 in. x 10 yd., premium quality, $3.25. Syringes, enemas, catheters, soft rubber stomach tubes. Price list, free. Healing Arts Supply Co., (J) 375 E. Fordham Rd., New York 58, N.Y.

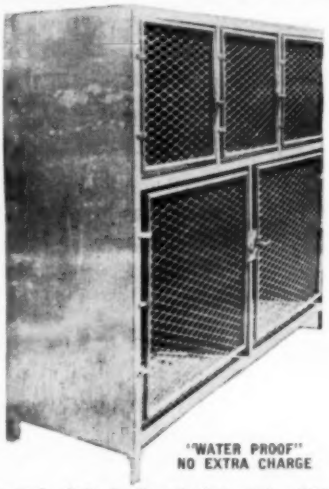
Medical field operating lamps, new, portable, any current, to government specifications. All steel, 100 lb., $40. (we pay shipping). Catalog 25c. Sailors Surplus, Orangeburg 35, N.Y.

Artificial insemination instruments. Disposable obstetrical sleeves 20c each. Package of 20 including detachable chest band—$5, postpaid. Samples and complete catalog on request. Breeders Equipment Co., Flourtown, Pa.

Top Newspaper Coverage of 1953 Convention

The Ninetieth Annual Meeting not only broke all previous attendance records but it also received some of the most extensive publicity ever accorded an AVMA meeting. On the opposite page are sample headlines and stories representing the many different kinds of news items carried by Canadian and United States papers.

5 COMPARTMENT KENNELS
$169.50 IMMEDIATE DELIVERY



Water-proof, sheets heavily galvanized, steel. 1½" angle steel welded frames. Doors—9 ga. 1½" steel mesh with steel angle frame. Assembled complete. 5' 6" high. 6 ft. long, 6 in. off ground. Painted—175 in stock. Serving leading Universities.

Compare before you buy and you will agree that our kennel is excellently constructed, more costlier materials used, cheaper in price and you actually save from $25.00 to $75.00 for the same kennel constructed elsewhere. All floors are flush for easy cleaning. Over 3,000 satisfied customers. Heavy duty casters, $12.50 extra. Sorry, no C.O.D.'s. Send check or M.O.

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Mfrs. of Ill. Crates, Equipt. & Supplies Since 1912
7600 S. Campbell Ave., RE 7-3300, Chicago 29, Ill.

Control Livestock Disease for More Food, Say Veterinarian

TORONTO, Canada, July 20.—One answer to the porblem of feeding the nation's rapidly expanding population was proposed here today by Dr. W. L. Boyd, president of the American Veterinary Medical association.

Delivering annual president's address at the AVMA convention casts of [illegible] future [illegible] more ad[illegible] methods.

"Impr[illegible] measur[illegible] ing po[illegible] tion,"

"We[illegible] search was emphasized often yesterday expan during sessions of the American recen Veterinary Medical Association lar s convention at the Royal anth Hotel.

Sta

Of course it's fairly ob[illegible] In case of foot and mou[illegible] seen in a purebred Holstein [illegible] in distemper in a kennel [illegible] k priced pointers could cause [illegible] din the human owner. Bu[illegible] wasn't the type of relationsh[illegible] tween animal and human ill[illegible] the 2,500 veterinarians at the vention had in mind.

They were concerned [illegible] diseases of animals that can transmitted to humans; the infl[illegible] ence research on anim[illegible] has on human[illegible] the effe[illegible]

tional trends in veterinary colle[illegible] pointing to the need for regi[illegible] education facilities to obtain the r[illegible] benefits for the profession. He u[illegible] that the AVMA Council on Educe[illegible] explore the advantages of reg[illegible] education plans.

Animal Diseases Discussed

Other matters discussed at the [illegible] session of the convention [illegible] diseases in pigs and [illegible]

Research on Pets May Help Humans To Live Longer

Because he hated to see pets die, Dr. Mark Morris of Topeka, Kan., started some research 27 years ago. He has spent thousands of dollars of his own money and obtained results which have made him [illegible]

[illegible] result of his research, there [illegible] come a time when humans [illegible] live longer.

[illegible] re are some results of his re[illegible] h:

therapeutic feeding prescrip[illegible] for small animals.

therapeutic [illegible] of cats to [illegible] ses, a na[illegible] United

[illegible] teria in

[illegible] of the [illegible] al As[illegible] leclar[illegible] ldren, [illegible] and [illegible] may [illegible] ects, [illegible] able [illegible] ese [illegible] ver. [illegible] er-

Vets Meet, Hear of Link In Animal, Human Disease

By ELDON STONEHOUSE

The close relationship between animal disease and human health was emphasized often yesterday during sessions of the American Veterinary Medical Association convention at the Royal Hotel.

Of course it's fairly ob[illegible] In case of foot and mou[illegible] seen in a purebred Holstein [illegible] in distemper in a kennel [illegible] k priced pointers could cause [illegible] din the human owner. Bu[illegible] wasn't the type of relationsh[illegible] tween animal and human ill[illegible] the 2,500 veterinarians at the vention had in mind.

They were concerned [illegible] diseases of animals that can transmitted to humans; the infl[illegible] ence research on anim[illegible] has on human[illegible] the effe[illegible]

the disease, and in efforts to find a method of immunizing against it.

Problems [illegible]

Veterinarians Watch TV Screen Caesarean Operation on Cow

Some 2,500 veterinarians from 22 such demonstrations will orig-
11 different countries sat in the inate from the temporary studio
main concert hall of the Royal which took 30 days to install.
York yesterday and witnesse[illegible] The broadcasts are carried to
birth of a calf by caesarean the hotel by a "closed circuit"
[illegible] from a make- which avoids the use of a tower-
[illegible] in an ing transmitter, and are spon-
sored by the Pitman-Moore Co.
[illegible] a subsidiary of Allied
[illegible] the Radio Cor-

Everything for Animals On Exhibit at Meeting

Never in the history of the world have animals been so well taken care of as they are today. That's the opinion of veterinarians attending the convention of the American Veterinary Medical Association here, and certainly to a layman the floor of exhibits at [illegible] York Hotel [illegible]

therapy, complete with the special containers which permit safe handling and storage of the "hot" needles. Before these needles may be purchased, it is necessary to obtain authorization [illegible] e U.S. Atomic [illegible]

AVMA Installs New President

Gen. J. A. McCallam of Washington, D.C., was installed as president of the American Veterinary Medical Association at the Royal York Hotel yesterday. Dr. A. H. Quin of Kansas City, is president-elect for 1954.

Other officers are: vice-presidents, Dr. J. G. Anderson, Calgary; Dr. Peter G. MacKintosh, Yakima, Wash.; Dr. J. F. Shigley, State College, Pa.; Dr. [illegible]

Saved Dog in Canyon, Gets Award

A young man who proved that a boy can be a dog's best friend yesterday received the 1953 National Humane Act Award of the American Veterinary Medical Association at the Royal York Hotel.

[illegible] one of several made [illegible] vention [illegible]

dation of the awards committee of the AVMA.

The committee reported that Martin saw the dog on a foot-wide ledge just above the rapids at the bottom of a British Columbia canyon. The animal had been stranded there for four days after [illegible] swept downstream when he [illegible] water during a fishing

up the canyon again just before dark. Next morning a group of men accompanied him to the scene and lowered him to the dog. He fashioned a sling and boy and dog were pulled to safety.

"I have a dog myself at home," said Martin, "and I thought of her when I saw that dog alone down there. I couldn't rest until I had fed him."

The award is made each year [illegible] the most outstanding act of [illegible] ness to animals by a boy or [illegible]

The previous award went [illegible] boy who rescued five horses [illegible] n a burning barn.

The $1,000 Borden award, also [illegible] ade yesterday, went to Dr [illegible] eorge W. Hart of Davis, Calif [illegible] r original research on contagiou [illegible] iseases and nutritional problem [illegible] dairy cattle. He is dean of t [illegible] terinary medicine [illegible]

Can Do Much to Help Old Dog Add Life to Years: Veterinary

Much can be done to help an old day add life to his years, says Dr.

ried out more safely and satisfactorily, than in the past and there is better pre-operative and post-

C.G.P. Reinforced
FOR MILK FEVER COMPLEX
. . . always dependable
This scientifically formulated product contains therapeutic amounts of CALCIUM, PHOSPHORUS, MAGNESIUM, and DEXTROSE which are vitally important in varied deficiency cases classified under the term "Milk Fever Complex". C.G.P. Reinforced is the most complete product of its kind for relieving the symptoms of PARTURIENT PARESIS, ACETONEMIA and GRASS TETANY.
The use of C.G.P. Reinforced is indicated for the treatment of the "downer cow" particularly when the cause of the deficiency is obscure.
Supplied in: 12-500 cc. puncture-sealed bottles.
HAVER-GLOVER LABORATORIES
Kansas City, Missouri

– SV-2

It's new! SV-2

Jen-Sal's 1954 hog cholera vaccine!

a modified live virus, porcine origin, hog cholera vaccine . . .

available now from Jen-Sal branches and distributors in 5, 10, and 50 dose vials

potency assured by the exclusive Jen-Sal VIASTAN* process . . .

Jensen-Salsbery Laboratories, Inc.
Kansas City, Mo.

Simultaneous Virus No. 2
for use with 25 cc. Hog Cholera Serum

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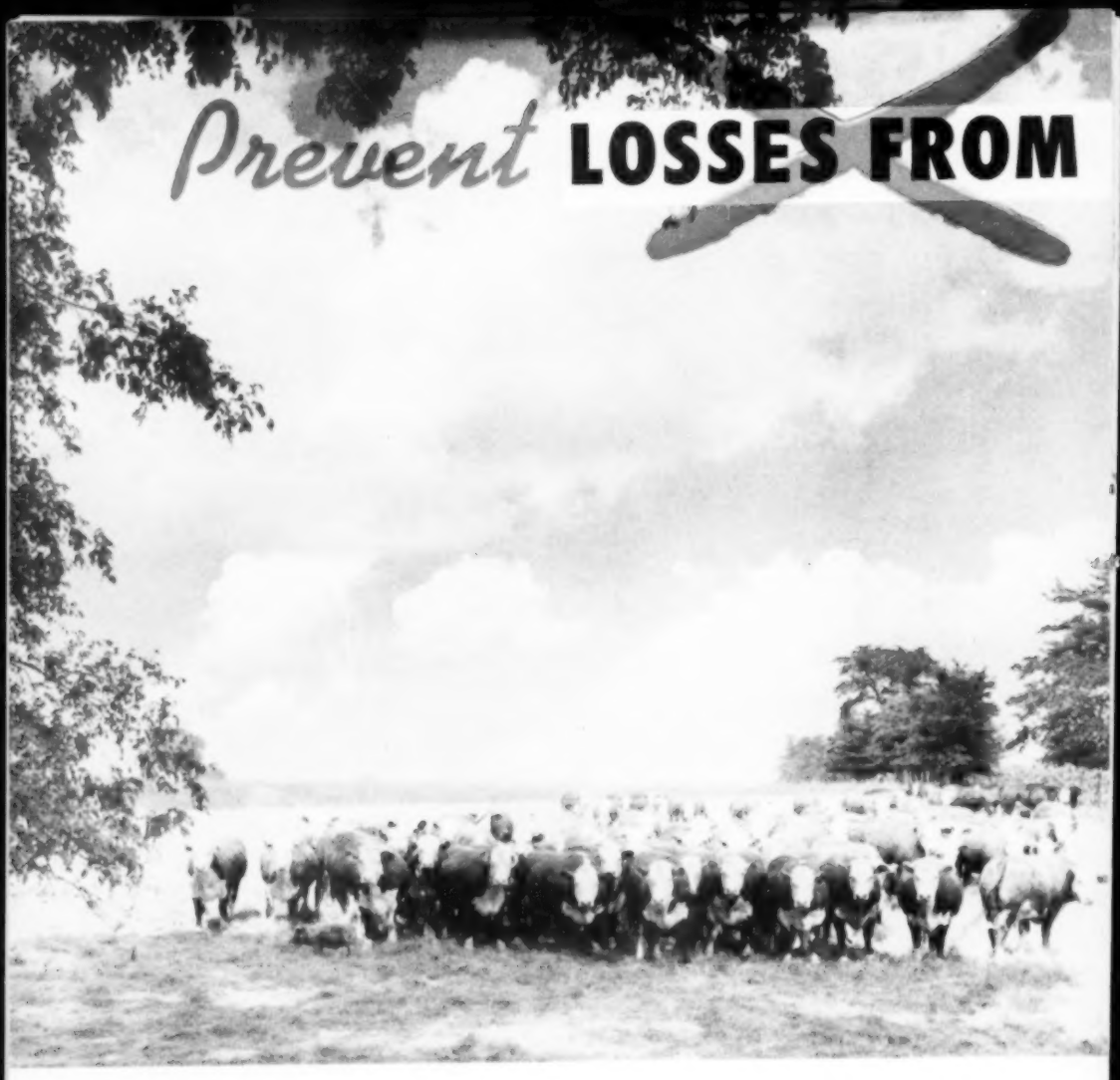

PASTEURELLA ANTISERA

It is recognized that Pasteurella organisms play an important part in the losses incident to shipment or exposure of cattle. The probability of a primary virus cannot be overlooked. For this reason, Anti-Hemorrhagic Septicemia Serum (Lockhart) and Anti-Corynebacterium Pasteurella Serum (Lockhart) are produced from mature cattle, proved to be immune to the complexes of "shipping fever." This PLUS VALUE accounts for the superiority of results obtained.

In those areas where infection by Corynebacterium is an important complication, Anti-Corynebacterium Pasteurella Serum (Lockhart) is recommended.

Either serum packaged in 100 cc., 250 cc. or 500 cc. size, single or multiple packages.